August 6, 2015

To: Hether Krause, R.S., CPM
Ombudsman | Citizen Advocate
Air Quality & Environmental Services Departments
Maricopa County
101 N. Central Avenue
Phoenix, AZ 85004

From: Daniel E. Blackson
42211 W. Salome Highway
Tonopah, AZ 85354

Subject: Air Quality Permit to Operate and/or Construct # 140062 Comments

I am making comments on Air Quality Permit to Operate and/or Construct # 140062 for the Hickman Egg Factory on behalf of the Tonopah community. We are concerned about how the egg factory will harm our health, prevent us from enjoying our property, and damage our environment.

The Clean Air Act established Standards for ambient air quality to protect public health and welfare. We beseech you to realize the spirit and implement the requirements of the Clean Air Act by following the New Source Review process and enforcing statutes, regulations, codes, and permit conditions. Our very health, wellbeing, and prosperity depend on you, as well as the future of the Tonopah community. Tonopah can never blossom into the "Gateway to Maricopa County" with a factory farm that fouls the air and makes being outdoors unpleasant and undesirable.

I am also concerned about a casual dismissal of my comments and I have been hesitant to submit them because of this concern. As you know I made a request for a public hearing, which was not honored and despite repeated warnings, the Permittee commenced operations without an air quality permit for emergency diesel operations. I can only hope that my comments will be faithfully considered and that the concern for human health and protection of the environment will be a higher priority than operation of a business or political stature.

I encourage Maricopa County Air Quality Department to conduct a thorough research on the current factory farm environmental and regulatory issues. Networking with other states and counties to see how they have created programs, resolved issues, and protected the environment and human health related to CAFO operations would be very beneficial. As factory farms get larger, the controversy over their operations gets larger. Concerns about emissions; air quality permits; CERCLA and RCRA release reporting; and effects on human health may have to be resolved in the courts. I trust the Department will not let that

happen in Maricopa County and instead view this exceptionally large CAFO as a stationary source of air pollution and issue a permit worthy of its true generation of air pollution.

I am willing to meet with you to discuss and clarify any comments and look forward to your responses.

Sincerely,

Daniel E. Blackson, MT

cc: Henry R. Darwin, Arizona Department of Environmental Quality

ecc: Danielle Diamond, Socially Responsible Agricultural Project
Steve Brittle, Don't Waste Arizona
Linda Butler, Save Tonopah Oppose Poultry Plant
Michael Wirth, Saddle Mountain RV Park
Lawrence Maurin, Environmental Protection Agency
Lisa Beckham, Environmental Protection Agency
Maeve Clancy, Environmental Protection Agency
Nancy Levin, Environmental Protection Agency

Attachment A

Comments

Air Quality Permit to Operate and/or Construct

Permit No.: 140062

Revision No.: 0.0.0.0

Revision Date: 11/17/2014

Comment #1: Bulk Materials

Hickman's Tonopah egg factory has bulk materials handled, stored, and/or transported at their facility and Air Quality Permit to Operate and/or Construct #140062 does not properly establish permit conditions and requirements.

Discussion

Maricopa County Air Quality Department (AQDX) received an application for a Non-Title Air Quality Permit from Hickman's Egg Ranch, Inc. on September 26, 2014 for the Tonopah facility. In Section L. OTHER DUST GENERATING OPERATIONS, question #6 was checked "Yes" for bulk materials handled, stored or transported at this facility and identified the bulk material as "Chicken Feed".

The bulk material must be off-loaded from delivery trucks and conveyed from the silos to the hen houses. The transfer of bulk material is a dust generating activity and must be properly regulated. The same or similar activity is recognized in the Air Quality Permit to Operate and/or Construct # 040136 for the Arlington Egg Ranch.

Although it is not identified in the application, the off-loading of the bulk material and distribution to the hen houses is probably done pneumatically or via conveyors. Whatever the process, it is a dust generating activity and is not listed as an insignificant activity (Appendix D) or a trivial activity (Appendix F). Therefore, it is a regulated activity and should be a permit condition for the Tonopah Egg Ranch and related equipment listed on the Permit's Equipment List. If a control device is involved, it would also trigger the requirement for an Operation and Maintenance Plan.

Note that the permittee's Dust Control Permit Application form for question 11. was not completed. (Size of Project and Estimated Bulk Materials). Public records requests have not demonstrated that there has been a modification to the Dust Control Plan/Permit for bulk materials.

Rule/Regulation

The AQDX rules regulating this activity are Rules 220, 300, and 311; State Implementation Plan Regulation 2 – Permits 023 Permit Classes & 220 Permits to Operate; and State Implementation Plan Regulation 3 – Control of Air Contaminants 300 Visible Emissions & 311 Particulate Matter from Process Industries.

Comment #2: Odor Control: Compliance Demonstration for Hydrogen Sulfide

Sampling for only hydrogen sulfide for chicken manure is inadequate.

Discussion

Numerous studies have identified other gases in chicken manure and they should be appropriately monitored when odor complaints occur. According to North Carolina State University study *Understanding Livestock Odors* (Publication AG-589) poultry manure odorous emissions are hydrogen sulfide as well as aliphatic (fatty) acids, amines, ammonia, aromatics, and inorganic and organic sulfur. When anaerobic conditions occur methane, carbon dioxide, ammonia, acetic, propionic and butyric are produced. "The decomposition of amino acids by bacteria produces amines, such as cadaverine and putresine. The very offensive smelling compound methyl mercaptan is a product of amino acid decomposition, and can be oxidized to the unpleasant smelling compounds dimethyl disulfide or dimethyl sulfide." Other studies that support this conclusion are: *Agricultural Waste Management: Problems, Processes, and Approaches* by Raymond Loehr (adds two- to five-carbon organic acids, indole, skatole, & diketones); Air Quality and Emission from Livestock and Poultry Production/Waste Management Systems (adds nitrous oxide, mono-methane volatile organic carbon, dust, and microbial and endotoxin aerosols); *Chapter 4. Emission and Community Exposures from CAFOs* by Steven J. Hoff, et al; *Odors from Confined Livestock Production* EPA-660/2-74-023 (adds volatile compounds butyric acid, ethanol, acetoin, & acetic, propionic, iso-butyric, n-butyric, iso-valeric, and n-valeric acids); *Odor Assessment of Idaho Livestock Farms and Manure Application Practices*; and other references can be provided.

Raising a Stink: Air Emissions from Factory Farms by Michel Merkel provides examples of CAFO odor qualities (page 5):

Chemical Name	Smell
Hydrogen sulfide	Rotten Eggs
Dimethyl sulfide	Rotting vegetables
Butryic, isobutryic acid	Rancid butter
Valeric acid	Putrid, fecal smell
Isovaleric acid	Stinky feet
Skatole	Fecal, nauseating
Indole	Intense fecal

[These references can be found by searching the internet or they can be provided if requested.]

Hydrogen sulfide is not the major odor that escapes the boundaries of the Tonopah egg ranch, but rather a combination of the odors in the above table and more. Therefore, strictly monitoring for it will not support the compliance with permit Specific Condition 3.b :

> "Material Containment Required: Materials including, but not limited to, solvents or other volatile compounds, paints, acids, alkalies, pesticides, fertilizer and manure shall be processed, stored, used and transported in such a manner and by such means that they will not unreasonably evaporate, leak, escape or be otherwise discharged into the ambient air in such quantities or concentrations as to cause air pollution, smells, aromas or stenches commonly recognized as offensive, obnoxious or objectionable to a substantial part of a community. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices or equipment shall be mandatory."

Lack of detecting hydrogen sulfide and numerous complaints that did not identify the rotten egg odor of hydrogen sulfide, demonstrates that hydrogen sulfide is not the routine offensive, obnoxious, objectionable odor from the facility.

Besides hydrogen sulfide, gases such as VOCs, ammonia, methyl mercaptan, dimeththyl disulfide, valeric acid, skatole, indole, and other representative odorous compounds should be routinely monitored to demonstrate compliance with the odor permit condition. A "Nasal Ranger" Field Olfactometer and Dragger diffusion tubes could be used.

Rule/Regulation

The AQDX rule regulating this activity are Rule 320 and State Implementation Plan Regulation 3 – Control of Air Contaminants 032 Odors and Gaseous Emissions and 032 Odors and Gaseous Emissions (Paragraph G, H, J, K).

Comment #3: Odor Control: Compliance Demonstration Hydrogen Sulfide Monitoring

Complaint driven monitoring for hydrogen sulfide lacks clarity and is inadequate to demonstrate compliance.

Discussion

According to the Compliance Demonstration 2.b of the permit: The Permittee shall perform a compliance demonstration by conducting a test to monitor hydrogen sulfide levels within 90 days of any of the following events: "... b. The receipt of three (3) odor complaints within any 12-month period...". This could be interpreted to perform hydrogen sulfide monitoring each time a group of three odor complaints are received within a 12-month period or perform monitoring once in a 12-month period if three or more odor complaints are received. In other words, if fifteen odor complaints are received within a 12-month period, is hydrogen monitoring performed 5 times or once? Also, monitoring months after a complaint does not demonstrate compliance with the odor standard at the time the complaint was made. One hydrogen sulfide monitoring event for 50+ complaints in a <12 month period does not demonstrate compliance with odor control requirements.

In order to protect the environment, protect public health, and allow residents to enjoy their life and property, monitoring within 24 hours should be required every time that there is an odor complaint. The Permittee should not be given extremely generous timeframes to choose favorable process and atmospheric conditions to demonstrate compliance with odor control failures. The Texas Commission on Environmental Quality Odor Complaint Investigation Procedures is a model for response to odors that could be adopted to more thoroughly address odor complaints.

Rule/Regulation

The AQDX rule regulating this activity are Rule 320 and State Implementation Plan Regulation 3 – Control of Air Contaminants 032 Odors and Gaseous Emissions and 032 Odors and Gaseous Emissions (Paragraph G, H, J, K).

Comment #4: Odor Control: Compliance Plan

The Compliance Plan singles out a particular gas, hydrogen sulfide, rather than enforcing the odor control standard.

Discussion

The Odor Control Standard reads:

"1. Standards:

No person shall emit gaseous or odorous air contaminants from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.

a. Material Containment Required: Materials including, but not limited to, manure shall be processed, stored, used and transported in such a manner and by such means that they will not unreasonably evaporate, leak, or escape or be otherwise discharged into the ambient air in such quantities or concentrations as to cause air pollutions smells, aromas or stenches commonly recognized as offensive, obnoxious or objectionable to a substantial part of a community. Where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices or equipment shall be mandatory."

Hydrogen sulfide is not specifically listed in the Odor Control Standard, but "air pollutions smells, aromas or stenches commonly recognized as offensive obnoxious or objectionable to a substantial part of a community" is listed. Only identifying hydrogen sulfide is too limiting. Hydrogen sulfide is an indicator of odor, but control of all odors is the permit condition. The offensive gases and particulates in chicken manure have been identified and can be measured. The Compliance Plan should be revised to address an exceedance of offensive, obnoxious or objectionable air pollution smells, aromas or stenches.

Rule/Regulation

The AQDX rule regulating this activity is Rule 320 and State Implementation Plan Regulation 3 – Control of Air Contaminants 032 Odors and Gaseous Emissions and 032 Odors and Gaseous Emissions.

Comment #5: Manure Hauling

Hauling of chicken manure as bulk material is not identified in Category D. Bulk Material Handling of the application for Dust Control Permit E140170 or subsequent Dust Control Plan Changes.

Discussion

Rule 310.01 Fugitive Dust From Non-Traditional Sources of Fugitive Dust has the following requirement:

"302.8 Livestock Activities...

b. Control Measures...

(2) For bulk material hauling, including animal waste, off-site and crossing and/or accessing an area accessible to the public:

(a) Load all vehicles used to haul bulk material, including animal waste, such that the freeboard is not less than three inches;

(b) Prevent spillage or loss of bulk material, including animal waste, from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);

(c) Cover cargo compartment with a tarp or other suitable closure; and

(d) Install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site."

The facility's *Nutrient Management Plan* by Huston Environmental Services (October 31, 2014), states that the 4,300,800 laying hens at the facility will produce 136 tons of manure per day or 49,555 tons annually. Off-site hauling of the manure will result in significant truck traffic and the bulk hauling of manure should be a permit condition to protect the environment and public health.

Rule/Regulation

The AQDX rule regulating this activity is Rule 310.01 and State Implementation Plan Regulation 3 – Control of Air Contaminants 310.01 Fugitive Dust From Non-Traditional Sources of Fugitive Dust.

Comment #6: Particulate Matter from Process Industry

Egg and manure production is a process industry that generates particulate matter.

Discussion

Rules 100 and 311 do not define "Process Industry". However, Arizona Administrative Code R18-2-101.111 reads ""Process" means one or more operations, including equipment and technology, used in the production of goods or services or the control of by-product waste." "Goods" and "services" are not further defined. A definition of "industry" could not be found in County, State, and Federal regulations, however, references were made to the Standard Industrial Classification Manual, 1987. Chicken egg farms were classified as "Businesses and Products of SIC Industry 0252". Also, the North American Industry Classification System code for chicken egg production is 112410.

The Tonopah Egg Factory should be regulated as a process industry (Rule 311) for the following reasons:

- The facility meets the definition of a stationary source (see Rule 100 §200.105)
- The facility discharges particulate matter (i.e., PM_{10}, $PM_{2.5}$, feathers, dried skin, feces, feed, bacteria, fungi, and endotoxins; *Air Quality and Emissions from Livestock and Poultry Production/Waste Management Systems*, Kenneth D. Casey, et. al)
- The facility is an "Affected Operation"(Rule 311 § 200.201), which is not subject to Rules 313, 316, 317, 319, 322, or 323.
- The facility has processes: 1) unloading and transfer of feed, 2) production of eggs, 3) collection, drying, and loading of manure, 4) ventilation of hen house, manure pit, and manure drying area, and 5) process water system with impoundments.
- The facility is defined as an industry per Standard Industrial Classification Manual, 1987 code 0252 and North American Industry Classification System code 112410.
- Arizona Revised Statures 3-1204 acknowledges that there are sheep and goat industries, which infers that chickens are also an industry.
- EPA recognizes that egg production and chicken manure is an industry where it states in the effluent guidelines and standards for concentrated animal feeding operations (CAFO) point source category 40CFR §412.3: "This part applies to manure, litter, and/or process wastewater discharges resulting from concentrated animal feeding operations (CAFOs). Manufacturing and/or agricultural activities which may be subject to this part are generally reported under one or more of the following Standard Industrial Classification (SIC) codes: SIC 0211, SIC 0213, SIC 0214, SIC 0241, SIC 0251, SIC 0252, SIC 0253, SIC 0254, SIC 0259, or SIC 0272 (1987 SIC Manual)."

The Tonopah Egg Factory is a process industry and Rule 311 requirements should be included in it's Non-Title V Air Quality Permit to establish particulate matter emission limits and require appropriate recordkeeping, reporting, monitoring, and testing.

Rule/Regulation

The AQDX rule regulating this activity are Rules 300 & 311 and State Implementation Plan Regulation 3 – Control of Air Contaminants 300 Visible Emissions & 311 Particulate Matter from Process Industries.

Comment #7: Open Outdoor Fires

If improperly dried/composted, manure fires will occur.

Discussion

Manure piles with temperatures that exceed 180^{0}F can spontaneously combust. (*Best Management Practices for Storing and Applying Poultry Litter*, Dan L. Cunningham, et. al.). Manure pile fires at the Arlington Egg Factory have occurred and the Permittee has been cited with a violation. As one example, see Inspection Report-Violation 732956.

Manure piles are placed in an open building at the Tonopah Egg Factory and have the potential to spontaneously combust. Since an open fire is inherent to the manure drying/composting process it should be a permit condition, just like dust generation is inherent to materials handling, which is common permit condition. ADQX Rule 314 should be included in the facility's Non-Title V Air Quality Permit as a permit condition and limits be placed on storage time, temperature, and moisture content of manure.

Rule/Regulation

The AQDX rule regulating this activity is Rule 314 and State Implementation Plan Regulation 3 314 Open Outdoor Fires and Indoor Fireplaces at Commercial and Institutional Establishments.

Comment #8: New Source Review

The Tonopah Egg Factory is a stationary source that emits air pollutants and should have had a New Source Review prior to construction.

Discussion

The New Source Review (NSR) is a permitting process created by Congress in 1977 as part of a series of amendments to the Clean Air Act. The NSR process requires industry to undergo an EPA pre-construction review for environmental controls if they propose either building new facilities or any modification to existing facilities that would create a "significant increase" of a regulated pollutant.

Here are the supporting evidence and justifications why a New Source Review should be done and should have been required:

- The facility meets the definition of a Stationary Source.
- The facility is source of air pollution.
- The facility emits regulated pollutants:
  - Criteria pollutants: particulate matter (PM_{10} & $PM_{2.5}$) and nitrogen dioxide;
  - VOCs which are a precursor of ozone, which is regulated;
  - VOCs which are a Hazardous Air Pollutant;
  - Ammonia which is a precursor of $PM_{2.5}$, which is regulated;
  - Hydrogen sulfide, which is listed as a New Source Review Standard; and
  - Odor, which is regulated by Maricopa County Air Quality Rules and SIP Regulation 3 – Control of Air Contaminants 032 Odors and Gaseous Emissions and 032 Odors and Gaseous Emissions (Paragraph G, H, J, K).
- The size of the facility is extraordinary. The American Egg Board website lists the top egg producing states and the number of hens:

State	Number of Hens
Iowa	54,876,000
Ohio	30,826,000
Indiana	25,204,000
Pennsylvania	23,559,000
Texas	14,845,000
California	12,733,000
Michigan	12,457,000
Minnesota	11,175,000
Georgia	9,785,000
Nebraska	9,353,000

The likely build out of the Tonopah Egg Factory is:

Hen Houses	Number of Hens
Possible Build Out	~12,000,000
28	8,601,600
14	4,300,800
7	2,150,400

Note that this one facility will produce more eggs than most states and ultimately may position itself in the listing of the top ten egg producing states.

Additional facts to consider from the American Egg Board website are:

- "The five largest egg producing states represent approximately 49 percent of all U.S. hens."
- "Presently, there are approximately 63 egg producing companies with 1 million-plus hens that represents approximately 86 percent of total production and 17 companies greater than 5 million hens."

- According to the facility's Aquifer Protection Permit Determination of Applicability application, 49,555 tons of manure is generated per year. Note that the hen house ventilation system blows through the hen cages, across the manure collection pit, across the rows of manure, and out the building opening. There are no pollution control devices. Air pollution discharged consists of regulated gases, odors, feathers, chicken dander, PM_{10}, $PM_{2.5}$, dried skin, feces, feed, bacteria, fungi, and endotoxins.

- According to the facility's Aquifer Protection Permit Determination of Applicability application, 4,380,000 gallons of egg processing water (process wastewater per R18-9-901A.29). This water containing urine, feces, feed, etc. is placed in evaporation impoundments where regulated gases and odor are released.

- Agency studies demonstrate and/or identify that there are significant emissions from poultry operations:

  - *Development of Emissions – Estimating Methodologies from Broiler Operations*, EPA, February 2012
  - *Agricultural Waste Management Field Handbook*, Part 651, Chapter 2, Planning Consideration, U.S. Department of Agriculture, 2011
  - *Emissions from Animal Feeding Operations*, August, EPA, 2001
  - *The Scientific Basis for Estimating Emissions from Animal Feeding Operations*, National Academy of Sciences, EPA, and Department of Agriculture, 2002
  - *National Emission Inventory-Ammonia Emissions from Animal Husbandry Operations*, EPA, 2004

- *Air Emissions from Animal Feeding Operations: Current Knowledge, Future Needs*, National Academy of Sciences, EPA, and Department of Agriculture, 2002
- *Air Quality Issues an Animal Agriculture: A Primer*, Congressional Research Service, 2014

- This facility is located in Area A and emits PM_{10}, $PM_{2.5}$, and VOCs. The facility's discharged air pollution will deteriorate the air quality in Area A, possibly expanding the PM_{10} and Ozone (8-hr standard) non-attainment areas. To prevent Significant Deterioration is justification and the purpose of performing a New Source Review prior to construction.

- Particulate Matter is causing visible haze, which is like a halo around the hen houses. This is a physical, observable demonstration that a New Source Review should have been performed prior to construction.

- It was stated at a community meeting with Maricopa County Air Quality personnel on June 29, 2015 that over 50 odor complaints (violation of the Permittee's Non Title V Air Quality Permit) have been made against this facility.

- The State of Arizona and Maricopa County regulate air emissions from Sewage Treatment Facilities (STP) by requiring design criteria utilizing Best Available Demonstrated Control Technology (BADCT). See Arizona Administrative Code R18-9-B201 and Maricopa County Environmental Health Code Chapter II. BADCT requirements include maintenance activities; biosolids management; setbacks; odor and noise control; and odor easements. An STP must meet BADCT standards whether it is constructed and operated in a city or in a rural area. Nothing less should be done when constructing an extremely large CAFO in an existing neighborhood, especially when it is near a commerce center.

- As stated in the *Concentrated Animal Feeding Operations EPA Needs More Information and a Clearly Defined Strategy to Protect Air and Water Quality from Pollutants of Concern* report (US Government Accountability Office, September 2008, page 1): "Some large farms that raise animals can generate more raw waste than the populations of some U.S. cities produce annually". This extremely large CAFO is one of those "large farms" and should be appropriately regulated for the pollution that it generates.

- This facility could be a major pollution emitting facility. However, it is not known until air emissions are estimated, calculated, or measured. Baseline ambient air monitoring should have been performed prior to construction and operation. Here's a quote from Claudia Copeland's *Air Quality Issues and Animal Agriculture: EPA's Air Compliance Agreement* CRS report (p. 11):

> "As contemplated in the agreement, the monitoring was carried out from mid-2007 through the end of 2009. Purdue University researchers then conducted final

processing and reviews of the data and prepared reports on the individual sites. In January 2011, EPA released the data and reports on the monitored AFOs. The agency has not yet issued a final summary report to interpret all of the data, but an analysis was prepared by the Environmental Integrity Project (EIP), a nonprofit organization that focuses on environmental enforcement issues. EIP's analysis found that, despite the small number of monitored sites, measured levels of several pollutants—particles, ammonia, and hydrogen sulfide—exceeded CAA health-based standards, worker protection standards, and federal emission reporting limits at some of the study sites. EIP was critical of aspects of the study design (e.g., failure to measure short-term emissions at all sites, and inclusion of "negative" values that could represent erroneous samples and thus may underestimate pollution) and recommended that the data be thoroughly peer reviewed."

Since the much smaller hen houses at the AFOs in the study exceeded CAA health based standards for particulates, ammonia, and hydrogen sulfide, there is little doubt that the exceptionally large hen houses at this extremely large CAFO will also exceed particulates, ammonia, and hydrogen sulfide CAA health-based standards. The EIP report can be found by a web search of the title: *Hazardous Pollution from Factory Farms: An Analysis of EPA's National Air Emissions Monitoring Study Data* or by drilling into EIP's web site:

www.environmentalintegrity.org/documents/HazardousPollutantsfromFactoryFarms.pdf.

- Federal, state and county regulations do not prohibit a New Source Review for Concentrated Animal Feed Operation facilities.

Maricopa County Air Quality Department has the obligation to recognize this facility as a stationary source that releases air pollutants, which have the potential to exceed the Clean Air Act health-based standards and cause significant deterioration of Area A air quality. Maricopa County Air Quality Department should champion the effort to instigate a New Source Review with the Arizona Department of Environmental Quality (A.R.S. 49-402) so the health of the Tonopah citizens will not be harmed, their property can be enjoyed, the environment won't be damaged, the community overall can prosper.