BEFORE THE

IOWA DEPARTMENT OF NATURAL RESOURCES

PETITION BY BOB WATSON, DICK JANSON, LEW KLIMESH, AND LARRY STONE FOR A DECLARATORY ORDER THAT THE AIR EMISSIONS FROM HOG CONFINEMENT BUILDINGS CONTAIN MANURE THAT MUST BE RETAINED BETWEEN PERIODS OF MANURE DISPOSAL	)	PETITION FOR DECLARATORY ORDER

1 - WE ARE ASKING THE DNR FOR A DECLARATORY ORDER

The Petitioners state:

[The unnumbered paragraph immediately below and our sections 1-3 address numbers 1-4 of the form set out in Uniform Administrative Rule X.1.] 2 - INCLUDED IN THIS DOCUMENT

3 - OUR REQUEST

Our position is that air emissions from hog confinements contain excreta/waste/manure which according to Iowa code is to be retained in the building between application events, and our position is that the DNR should regulate these emissions accordingly. Referencing the technical information, government studies, and research studies in this document justifying our position, does the DNR agree with our position and will they issue a declaratory order stating such?

1. We agree with the state's and DNR's definition of excreta/waste/manure: Iowa Code Section 459.102(39) defines manure as "animal excreta or other commonly associated wastes of animals, including, but not limited to, bedding, litter, or feed losses." The DNR rule has exactly the same definition.

4 - DEFINITION OF MANURE

This is a "quality" definition of waste in that it talks about what the waste is made of, its constituent parts; including hydrogen sulfide, ammonia, methane, antibiotic-resistant organisms, and particulates which we cite in this document. As written, this definition includes everything that comes off of, or out of a pig, and any feed loss in a modern hog confinement. Basically, everything in a modern hog confinement is included in this definition except the hogs.

The state calls this material excreta. In the wastewater industry in similar environments, this material is called waste. The industrial agriculture people call this manure. We will use these terms interchangeably: excreta/waste/manure.

We are prepared to defend the State of Iowa's quality definition of excreta/waste/manure from other definitions including quantity definitions such as a materials handling definition. Quantity definitions say nothing about what is in the waste, its quality, i.e., what makes up the waste.

5- OUR MANURE DEFINITION ARGUMENT

There may be some who say that air emissions from a modern hog confinement do not include excreta/waste/manure. That is a specious argument based on an idea of an "ideal historic excreta/waste/manure." That "ideal historical excreta/waste/manure" which may be argued is not being discharged (but some other separate things are) is based on excreta/waste/manure from pigs in the past that were raised naturally on the land without the use of antibiotics, growth hormones, and such. Those pigs' excreta/waste/manure, when deposited directly onto the land, naturally broke down through action by wind, water, sunlight, insects, animals, and soil organisms, into its beneficial constituent parts and contributed to the fertilization of the soil and the nutrient uptake cycle. That historical manure is not the waste that we see in today's state mandated modern hog confinements. Modern hog confinements have a pit that the excreta/waste/manure drops into. This environment has no sunlight, wind, water, insects, animals, or soil organisms that help break down the waste as happens in a natural setting. The waste in a modern hog confinement breaks down in an anaerobic environment producing all of the constituent parts that we mention and cite in this document including gasses, particulates, and antibiotic-resistant organisms. These constituent parts of the excreta/waste/manure, the gasses, particulates, and antibiotic-resistant organisms, are vented or blown out of the confinement into the neighborhood and larger environment.

There is no argument that hydrogen sulfide, ammonia, methane, antibiotic-resistant organisms, VOCs, and particulates are constituent parts of the Iowa Code's quality definition of excreta/waste/manure. This is, and has been, known through the literature and studies for many years and is an accepted fact.

The State of Iowa's quality definition of excreta/waste/manure is corroborated by federal government research-based reports, by state government research-based reports, and by numerous independent research-based scientific studies published in peer-reviewed scientific journals. They all triangulate in detailing the various components of excreta/waste/manure that support the Iowa Code's quality definition of excreta/waste/manure [See: APPENDIX A1, Government Reports Cited in DNR Petition; APPENDIX A2, Research Studies Cited in DNR Petition; APPENDIX B1, CAFO Research Bibliography; APPENDIX B2, CAFO Research Studies and Government Reports; APPENDIX C1, MRSA Research Bibliography; and APPENDIX C2, MRSA Research Studies and Government Reports].

<u>Federal Government Research-Based Report re: Constituent Parts of Excreta/Waste/Manure</u>

The National Center for Manure and Animal Waste Management (NCMAWM) is funded by the USDA and in 2001 was comprised of sixteen (16) universities and their research faculties. In 2001 the NCMAWM requested their member research institutions to "assess the current state of the science for newly developing issues in the area of manure

management" (NCMAWM, 2001, n.p.). Scientific researchers at the member universities developed 20 White Papers, which were then summarized by each team of researchers for inclusion in the overall study. One of the studies listed "hydrogen sulfide, ammonia, methane, non-methane volatile organic carbon, dust, microbial and endotoxin aerosols" as components of the manure management systems in CAFOs (Bicudo et al, p. 9). In addition, another team of researchers from three different universities discussed the "aerial emissions from animal production and waste management systems" as being "predominantly a mixture of hydrogen sulfide (H_2S), ammonia (NH_3), volatile organic compounds (VOCs) and particulate matter (PM) (including bioaerosols)" (Schiffman et al, p. 10). The summaries within this USDA-funded-and-accepted federal report clearly include hydrogen sulfide, ammonia, methane, volatile organic compounds, and particulate matter as part of a quality definition of excreta/waste/manure [See APPENDIX A1, Government Reports Cited in DNR Petition].

State of Iowa Government Research-Based Report re: Constituent Parts of Excreta/Waste/Manure

Iowa's quality definition of excreta/waste/manure is also substantiated by a State of Iowa report. In June, 2001, the Governor of Iowa (Tom Vilsack) requested the Presidents of Iowa State University and The University of Iowa to help the Iowa Environmental Protection Commission and the Iowa Department of Natural Resources

> with addressing public health and environmental concerns arising from air emissions from concentrated animal feeding operations (CAFOs). With the concurrence of both presidents, Iowa Department of Natural Resources Director Jeffrey Vonk charged the College of Public Health at the University of Iowa and the College of Agriculture at Iowa State University to recommend standards for air quality and address other issues regarding CAFOs. (Iowa State University and The University of Iowa Study Group, 2002, p. 4) (Hereafter cited as ISU-UI Study Group)

Various components of excreta/waste/manure were addressed in the report, *Iowa Concentrated Animal Feeding Operations Air Quality Study*, which validate the state's quality definition of excreta/waste/manure by listing its components. These include the following:

- "Particulate matter associated with CAFOs is composed of fecal matter ... and the products of microbial action on feces..." (ISU-UI Study Group, p. 35).

- "Hazardous gases and vapors .... arise from the urine and feces, but especially from microbial degradation of liquid manure in storage or as manure compost. Table 3-3 lists volatile organic compounds; vapors and gases; and ... nitrogen-containing compounds" (ISU-UI Study Group, p. 39).

- Included in the listing of Table 3-3 are 23 VOCs, ammonia, and hydrogen sulfide (ISU-UI Study Group, Table 3-3, p. 40).

[See also APPENDIX A1, Government Reports Cited in DNR Petition]

Independent Research-Based Scientific Studies re: Constituent Parts of Excreta/Waste/Manure

Antibiotic-resistant organisms provide yet another constituent part of the Iowa Code's quality definition of excreta/waste/manure. Numerous independent research-based studies have been published in peer-reviewed scientific journals **identifying the presence of antibiotic-resistant organisms in swine housed in CAFOs.** These studies include, but are not limited to the following: Voss et al (2005), de Neeling et al (2007), Guardabassi et al (2007), Khanna et al (2008), Smith et al (2009), Pomba et al (2009), Vanderhaeghen et al (2010), Alt et al (2011), Arriola et al (2011), Asai et al (2012), Overesch et al (2012), Vanderhaeghen et al (2012), Verhegghe et al (2013), Zhu et al (2013), and Hartley et al (2014). Other independent research-based studies published in peer-reviewed scientific journals **identified the presence of antibiotic-resistant organisms in pig excreta/waste/manure.** These studies include, but are not limited to the following: Nijsten et al (1996), Bager et al (1997), Wegener et al (1999), Aarestrup et al (2000, Spring), Aarestrup et al (2000, June), van den Bogaard et al (2000), Chee-Sanford et al (2001), Jensen et al (2001), Jensen et al (2002), Onan & LaPara (2003), Sengeløv et al (2003), Anderson & Sobsey (2006), Schmitt et al (2006), Ghosh & LaPara (2007), Koike et al (2007), Sapkota et al (2007), Akwar et al (2008), Binh et al (2008), Byrne-Bailey et al (2009), Chee-Sanford et al (2009), Donabedian et al (2010), Wu et al (2010), Graves et al (2011), Heuer et al (2011, April), Heuer et al (2011, June), Munir & Xagoraraki (2011), Hong et al (2012), Rahube & Yost (2012), Casey et al (2013), Gordoncillo et al (2013), Joy et al (2013), Kopmann et al (2013), Marti et al (2013), Soupir et al (2013), Tao et al (2014), Udikovic-Kolic et al (2014), Wang J et al (2014), He et al (2016), Luby et al (2016), and Wang N et al (2016). Additional independent research-based studies published in peer-reviewed scientific journals **identified antibiotic-resistant organisms as being present in the dust and air inside the CAFO itself.** These studies include, but are not limited to, the following: Gibbs et al (2004), Barrett (2005), Chapin (2005), Thorne et al (2009), Van den Broek et al (2009), Létourneau et al (2010), Yuan et al (2010), Friese et al (2012), Hong et al (2012), Masclaux et al (2013), Agersø et al (2014), Arfken et al (2015), and Ferguson et al (2016). Altogether these studies validate the presence of antibiotic-resistant organisms in Iowa's quality definition of excreta/waste/manure [See: APPENDIX A2, Research Studies Cited in DNR Petition; APPENDIX B1, CAFO Research Bibliography; APPENDIX B2, CAFO Research Studies and Government Reports; APPENDIX C1, MRSA Research Bibliography; and APPENDIX C2, MRSA Research Studies and Government Reports].

2. Iowa Code Section 459.311(1) requires that a confinement feeding operation shall retain all manure produced by the operation between periods of manure disposal. A confinement feeding operation shall not discharge manure directly into a water of the state or into a tile line that discharges directly into a water of the state.

This section contains two discreet sentences. The first sentence says that no excreta/waste/manure will be discharged between field application events. The second has to do with excreta/waste/manure reaching a water of the state.

OUR AMENDMENT I THAT MANURE & MUST BE RETAINED →

6.

Referencing Iowa Code Section 459.311(1), we contend the 24/7/365 discharge through air vents or blowers contain excreta/waste/manure.

7 - what is being blown out

The gasses, hydrogen sulfide, ammonia, and methane, antibiotic-resistant organisms, VOCs, and particulates are discharged out of hog confinement air vents/blowers 24/7/365. This is, and has been, known through the literature and research studies for many years and is an accepted fact. These are constituent parts of the waste as the waste breaks down in an anaerobic environment. We cite research-based government reports and peer-reviewed scientific research in this area in this document [See: APPENDIX A1, Government Reports Cited in DNR Petition; APPENDIX A2, Research Studies Cited in DNR Petition; APPENDIX B1, CAFO Research Bibliography; APPENDIX B2, CAFO Research Studies and Government Reports; APPENDIX C1, MRSA Research Bibliography; and APPENDIX C2, MRSA Research Studies and Government Reports].

Federal Government Research-Based Report re: Air Emissions From CAFOs of Excreta/Waste/Manure

The federal government's own data substantiates the afore-mentioned CAFO emissions into the surrounding air. In 2002 the U.S. Environmental Protection Agency and the U.S. Department of Agriculture contracted with the National Academy of Sciences to investigate the problem posed by CAFO air emission. The resulting study lists the following substances as being contained in CAFO air emissions: H_2S, NH_3, CH_4, VOCs, PM_{10}, and $PM_{2.5}$ (NRC, 2003, Table 1-1, p. 13). Chapter 3 of the same report was entitled "Air Emissions" and devoted space to discussing each emission in the following order: Ammonia [NH_3], Methane [CH_4], Volatile Organic Compounds [VOCs], Hydrogen Sulfide [H_2S], and Particulate Matter [PM_{10} & $PM_{2.5}$] (NRC, 2003, pp. 43-46).

In 2014 Congress requested that the Congressional Research Service prepare a report that more fully informed them about the issue of air emissions from animal feeding operations. In the initial summary at the beginning of the CRS report, the following statement was made: "AFOs can affect air quality through emissions of gases such as ammonia and hydrogen sulfide, particulate matter, volatile organic compounds, hazardous air pollutants, and odor" (Copeland, 2014, n.p.). The following statements occurred in the early portion of the Congressional Research Service report:

> AFOs can affect air quality through emissions of gases (ammonia and hydrogen sulfide), particulate matter (PM), volatile organic compounds (VOC), hazardous air pollutants, microorganisms, and odor. AFOs also produce gases (carbon dioxide and methane) that are associated with climate change. (Copeland, 2014, p. 2)

A table in the CRS report listed the following AFO emissions: ammonia, methane, VOCs, hydrogen sulfide, and two sizes of particulate matter, PM_{10} and $PM_{2.5}$ (Copeland, Table 1, p. 5).

In 2017 the EPA Office of Inspector General issued a report on EPA efforts to develop standards for several of the CAFO air emissions. The Inspector General's report

specifically noted the following air emissions from CAFOs: $PM_{2.5}$, PM_{10}, H_2S, VOCs, and NH_3 (EPA, OIG, 2017, Table 2, p. 13) [See APPENDIX A1, Government Reports Cited in DNR Petition].

State of Iowa Government Research-Based Report re: Air Emissions From CAFOs of Excreta/Waste/Manure

The State of Iowa also issued a report on air emissions from CAFOs in 2002. Key statements made buttressing Iowa's quality definition of excreta/waste/manure include the following:

- CAFOs are known sources of greenhouse gases such as methane... (ISU-UI Study Group, p. 42).
- "Potentially hazardous air pollutants arise from CAFOs and their associated manure storages... These air emissions include coarse and fine particulates, bioaerosols and endotoxins, hydrogen sulfide, ammonia, volatile organic compounds, ... and greenhouse gases" (ISU-UI Study Group, p. 42).

[See APPENDIX A1, Government Reports Cited in DNR Petition]

Independent Research-Based Scientific Studies re: Air Emissions From CAFOs of Excreta/Waste/Manure

Finally, multiple research-based studies published in peer-reviewed scientific journals **document CAFO air emissions of bacterial and/or antibiotic-resistant organisms**. These studies include, but are not limited to the following: Scarpino & Quinn (1998), Gibbs et al (2006), Green et al (2006), Thorne et al (2009), Hong et al (2012), Schulz et al (2012), Arfken et al (2015), McEachran et al (2015), and Ferguson et al (2016). As previously demonstrated, these drug-resistant organisms being emitted into the air from CAFOs are part of Iowa's quality definition of excreta/waste/manure [See: APPENDIX A2, Research Studies Cited in DNR Petition; APPENDIX B1, CAFO Research Bibliography; APPENDIX B2, CAFO Research Studies and Government Reports; APPENDIX C1, MRSA Research Bibliography; and APPENDIX C2, MRSA Research Studies and Government Reports].

3. We are asking the DNR for a "declaratory order" stating hog confinement air emissions contain excreta/waste/manure which according to Iowa code is to be retained in the building between application events, and that the DNR should regulate these emissions accordingly.

[Our section 4 below addresses number 7 of the Uniform Administrative Rule X.1. The class of persons who may be affected by or interested in the questions presented in this Petitions are persons living near hog confinement operations.]

4. This section will reference studies that we have included in this document that will go a long way towards giving the court an understanding of the context surrounding this issue. That context has made it virtually impossible to use the regulatory system to

WHO IS BEING AFFECTED AND HOW

protect human health from the harmful emissions coming from modern Iowa hog confinements.

There are times within an issue that someone does a study, or writes a paper, that allows all of the supposed disparate parts to fall into place. In this hog confinement issue that study is the 2014 Jillian Fry Johns Hopkins study, "Investigating the Role of State Permitting and Agricultural Agencies in Addressing Public Health Concerns Related to Industrial Food Animal Production." That study investigates the role of state permitting and agriculture agencies in addressing public health concerns related to industrial food animal production. The Fry study, included in this document, goes into great detail showing and discussing the gap between known public health threats from industrial agriculture and what is being done to protect the public through regulations from those know health threats.

From the Fry study:

> Research linking IFAP (Industrial Food Animal Production) to public health concerns and impacts continues to increase. In addition to posing respiratory health risks to those residing near operations [4]-[8] due to emissions that include hydrogen sulfide [9], particulate matter [9], endotoxins [10], ammonia [11], allergens [12], and volatile organic compounds [13], [14], odor generated by IFAP operations and spray fields has ben associated with a broad range of health problems. Public access to information regarding hazardous airborne releases from IFAP operations is hindered due to exemptions in federal laws that require disclosure of such releases [15], despite research linking chronic exposure to odors from IFAP to headaches, nausea, upset stomach, mood disorders, high blood pressure, and sleep problems [16]-[20]. Additionally, there is growing evidence that livestock can transmit methicillin-resistant Staphylococcus aureus (MRSA) to humans [21]-[23]. (Fry et al, 2014, pp. 1-2)
>
> Common across most states, however, is delegating the permitting to an agency without a primary mandate to address public health [31], raising concerns that public health issues may not be adequately monitored or addressed by the agencies tasked with regulating IFAP operations. (Fry et al, 2014, p. 2)
>
> No staff member, in permitting or agriculture agencies, said that they provided information regarding potential health issues related to IFAP. (Fry et al, 2014, p. 5)
>
> Our study reveals that sampled state permitting and agriculture agencies have taken limited actions to prevent and/or respond to public health concerns arising from IFAP operations. The main barriers identified that prevent further engagement include narrow or inadequate regulations, a lack of public health expertise within the agencies, and limited resources. There was widespread agreement among permitting and agriculture

agency interviewees that health departments (HDs) should play a role in regulating IFAP operations, partly due to their own agencies' limited mandates and available expertise in public health. Yet previously published findings show limited involvement by local and state HDs due to political barriers and a lack of jurisdiction, expertise, and resources [36]. (Fry et al, 2014, p. 6)

These results indicate a fragmented system to protect public health where no agency has ownership of monitoring or addressing the impact of IFAP on people's health. In short, HDs generally lack jurisdiction over IFAP operations [36] and permitting and permitting and agriculture agencies generally lack jurisdiction over and the capacity to address public health concerns. A growing divide between environmental and public health agencies was identified in the 1990's as a trend that threatens public health protections [42]. Research has found that the main foci of environment agencies have shifted to permitting, enforcement, record keeping, and standard setting, and away from public health evaluations [43]. Our findings are consistent with these trends. (Fry et al, 2014, pp. 6-7)

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[See: APPENDIX D1, Regulatory Issues Bibliography re CAFOs; APPENDIX D2, Regulatory Issues Research Studies and Reports re CAFOs]

5. We have included expert testimony from Dr. William H. Schlessinger and from Dr. Tara C. Smith [See APPENDIX E1, Expert Testimony, Dr. WH Schlessinger; APPENDIX E1a, Dr. WH Schlessinger Studies; APPENDIX E2, Expert Testimony, Dr. TC Smith; and APPENDIX E2a, Dr. TC Smith Studies].

9 - EXPERT TESTIMONY

6. All of our information, including some 800+ scientific studies, research articles, powerpoints, etc, will be filed along with this "request for declaratory order" to justify our perspective and contentions (See attached Appendices A-E).

10 - JUSTIFICATION OF OUR POSITION

[Our sections 7-9 below address numbers 5-7 of the form set out in Uniform Administrative Rule X.1.]

7. Petitioner, Lew Klimesh, lives near several hog confinement operations and is adversely affected by the air emissions from those confinement operations. Petitioners, Bob Watson, Dick Janson, and Larry Stone, have long been advocating for protection of people in Northeast Iowa from the harmful effects of hog confinement operations.

8. The Petitioners are not currently parties to another proceeding involving the questions at issue here, and to the Petitioners' knowledge, those questions have not been decided by, or are pending determination by, or are under investigation by, any governmental entity.

9. The class of persons who may be affected by or interested in the questions presented in this Petition are persons living near hog confinement operations.

10. Communications concerning this Petition should be directed to Bob Watson and Wallace Taylor, as listed below.

11. The Petitioners are:

Bob Watson
2736 Lannon Hill Road
Decorah, IA 52101
563-379-4147
bobandlinda@civandinc.net

Dick Janson
119 North Mill Street, Apt. Q
Decorah, IA 52101
563-382-6088
harlan.janson@gmail.com

Lew Klimesh
3175 Vanderbilt Lane
Waucoma, IA 52171
563-379-0670
lew.r.klimesh@gmail.com
[See APPENDIX F, CAFOs Near Lew Klimesh's Farm]

Larry A. Stone
23312 295th Street
Elkader, IA 52043
563-419-6742
Lstone@alpinecom.net

_____ Date: _____

Wallace L. Taylor
Law Offices of Wallace L. Taylor
118 3rd Ave. S.E., Suite 326
Cedar Rapids, Iowa 52401
319-366-2428
wtaylorlaw@aol.com

REFERENCES

Aarestrup FM, Agersø Y, Gerner-Smidt P, Madsen M, & Jensen LB (2000, June). Comparison of antimicrobial resistance phenotypes and resistance genes in Enterococcus faecalis and Enterococcus faecium from humans in the community, broilers, and pigs in Denmark. *Diagnostic Microbiology and Infectious Disease, 37* (2): 127-137.

Aarestrup FM, Kruse H, Tast E, Hammerum AM, & Jensen LB (2000, Spring). Associations between the use of antimicrobial agents for growth promotion and the occurrence of resistance among Enterococcus faecium from broilers and pigs in Denmark, Finland, and Norway. *Microbial Drug Resistance, 6* (1): 63-70.

CHAPTER X
DECLARATORY ORDERS

Agency No.—X.1(17A) Petition for declaratory order. Any person may file a petition with the (designate agency) for a declaratory order as to the applicability to specified circumstances of a statute, rule, or order within the primary jurisdiction of the (designate agency), at (designate office). A petition is deemed filed when it is received by that office. The (designate agency) shall provide the petitioner with a file-stamped copy of the petition if the petitioner provides the agency an extra copy for this purpose. The petition must be typewritten or legibly handwritten in ink and must substantially conform to the following form:

(AGENCY NAME)

Petition by (Name of Petitioner) for a Declaratory Order on (Cite provisions of law involved).	}	PETITION FOR DECLARATORY ORDER

The petition must provide the following information:

1. A clear and concise statement of all relevant facts on which the order is requested.
2. A citation and the relevant language of the specific statutes, rules, policies, decisions, or orders, whose applicability is questioned, and any other relevant law.
3. The questions petitioner wants answered, stated clearly and concisely.
4. The answers to the questions desired by the petitioner and a summary of the reasons urged by the petitioner in support of those answers.
5. The reasons for requesting the declaratory order and disclosure of the petitioner's interest in the outcome.
6. A statement indicating whether the petitioner is currently a party to another proceeding involving the questions at issue and whether, to the petitioner's knowledge, those questions have been decided by, are pending determination by, or are under investigation by, any governmental entity.
7. The names and addresses of other persons, or a description of any class of persons, known by petitioner to be affected by, or interested in, the questions presented in the petition.
8. Any request by petitioner for a meeting provided for by X.7(17A).

The petition must be dated and signed by the petitioner or the petitioner's representative. It must also include the name, mailing address, and telephone number of the petitioner and petitioner's representative and a statement indicating the person to whom communications concerning the petition should be directed.

(An agency may wish to describe here a simplified alternative petition form that would be more appropriate for some members of its clientele in light of their particular circumstances.)

Agency No.—X.2(17A) Notice of petition. Within 60 days (15 or less) after receipt of a petition for a declaratory order, the (designate agency) shall give notice of the petition to all persons not served by the petitioner pursuant to X.6(17A) to whom notice is required by any provision of law. The (designate agency) may also give notice to any other persons.