

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
 CONCENTRATED ANIMAL FEEDING)
 OPERATIONS (CAFOS): PROPOSED)
 AMENDMENTS TO 35 ILL ADM. CODE)
 501, 502 AND 504.)

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 STATE OF ILLINOIS
 Pollution Control Board

No. R2012-023

TRANSCRIPT FROM THE PROCEEDINGS

taken before the HEARING OFFICER TIMOTHY J. FOX
 by Kari Wiedenhaupt, CSR, at the Highland
 Community College, West Campus, 300 North West
 Street, Elizabeth, Illinois, on the 14th day of
 November, 2012, A.D., at 10:00 o'clock a.m.

1 A P P E A R A N C E S:

2 ILLINOIS POLLUTION CONTROL BOARD,
3 100 West Randolph Street

4 Suite 11-500
Chicago, Illinois 60601
5 (312) 814-6983

6 BY: MR. TIMOTHY J. FOX, Hearing Officer

7 ILLINOIS POLLUTION CONTROL BOARD MEMBERS
8 PRESENT:

9 Mr. Thomas Holbrook, Lead Board Member
10 Ms. Jennifer Burke, Board Member
11 Dr. Deanna Glosser, Board Member
12 Ms. Carrie Zalewski, Board Member
13 Mr. Anand Rao, Technical Unit
14 Ms. Alisa Liu, Technical Unit

15 ILLINOIS ENVIRONMENT PROTECTION AGENCY,
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19 (217) 782-5544

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21 MS. DEBORAH J. WILLIAMS,

22 Appeared on behalf of the Petitioner;

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28 BY: MS. CLAIRE A. MANNING,

29 Appeared on behalf of the Agricultural
30 Coalition;

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A P P E A R A N C E S: (Continued)

ENVIRONMENTAL LAW AND POLICY CENTER,
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(773) 818--4825
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and

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ALSO PRESENT:

KIM KNOWLES
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(217) 344-2371

Appeared on behalf of Prairie Rivers
Network.

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1 HEARING OFFICER FOX: Good morning, and
2 welcome to this Illinois Pollution Control Board
3 Hearing. My name is Tim Fox. I am the hearing
4 officer for this rulemaking proceeding, which is
5 entitled, In The Matter Of: Concentrated Animal
6 Feeding Operations (CAFOs): Proposed Amendments
7 to 35 ILL. ADM. Codes 501, 502 and 504. The
8 Board docket number for this rulemaking is
9 R12-23.

10 As our very first order of business, we
11 do have two members in the General Assembly who
12 are present here today to offer comments on the
13 Agency's proposal on this issue, and with that,
14 I would turn, first of all, to Representative
15 Jim Sacia who is representative in this
16 district. Sir, please --

17 REPRESENTATIVE SACIA: Thank you very much,
18 Mr. Fox, ladies and gentlemen of the Board,
19 ladies and gentlemen. It's a privilege to be
20 here, and it's a privilege to have you here.
21 You will recall that initially northwest
22 Illinois I believe I am correct in stating was
23 not a participant or was not having the Board
24 convene, and thanks to the livestock producers

1 and concerned individuals in this area, we
2 requested of you, and you were kind enough to
3 accommodate us, and we are very, very grateful
4 for that.

5 This representative district, the 89th
6 District is the third most significant livestock
7 area throughout the entire State of Illinois.
8 The livestock community provides \$109 billion
9 worth of direct economic impact to this great
10 state, and for that we are all very proud here
11 in northwest Illinois.

12 I understand the reasons for the CAFO
13 concerns. I truly do. I also am very, very
14 cognizant of the Livestock Management Facilities
15 Act that was passed approximately 20 years ago,
16 and I think one of the very important things
17 about the Livestock Management Facilities Act is
18 it does not allow livestock producers to. I
19 think that's very, very significant.

20 That being said, there is only two real
21 points that I would like to make. No. 1 and
22 most importantly, what types of plans and how
23 significant of cost impact will this have on our
24 livestock producers, the initial plan that -- I

1 am making an assumption here, Mr. Fox, that they
2 will have to submit regarding any potential
3 discharge.

4 That concerns me significantly and
5 obviously, the ongoing cost to the livestock
6 producers and how often the permit will have to
7 be renewed. That being said and wanting to stay
8 within the time constraints, I appreciate so
9 much your willingness to convene this Board in
10 Jo Daviess County and appreciate you giving me
11 the opportunity to make a few comments. So with
12 that, thank you all very much.

13 HEARING OFFICER FOX: Representative Sacia,
14 thank you very much for your comments, which we
15 greatly appreciate, and Senator Bivins, if you
16 would step forward, we would be happy to hear
17 from you and accept your comment into the
18 record.

19 SENATOR BIVINS: Thank you very much, and I
20 just have a very brief comment I would like to
21 read, and I just first would like to take the
22 opportunity to thank the Board for honoring the
23 request of former Representative Lawfer and
24 Representative Sacia and myself to come to Jo

1 Daviess County. You can see it's beautiful, if
2 you have never been here before, and it's very
3 rural. If you -- the new 45th Senate District
4 will go from East Dubuque down to Sandwich,
5 Illinois, which is 150 miles point to point. So
6 it takes in a lot of rural area. We are a rural
7 area, and 85 percent of our land mass outside
8 the City of Chicago, of course, is agricultural
9 land.

10 Agriculture plays a huge role in the
11 Illinois economy, as Representative Sacia said,
12 and it does -- as it does in northwest Illinois,
13 pumping in approximately \$9 billion a year into
14 the state's economy. So you can see the
15 importance of receiving the input of those who
16 may be impacted by these rule changes. As you
17 know, the Illinois Pork Producers Association,
18 the Illinois Farm Bureau, Illinois Beef
19 Association and Illinois Milk Producers have
20 been working with the IEPA for several years to
21 clarify the requirements for the permit program
22 for concentrated animal feeding operations.

23 Reasonable and technical, feasible
24 regulations will provide necessary environmental

1 protections while maintaining a strong
2 agricultural sector of our economy. By
3 providing clarity in the rule and consistency
4 with the Livestock Management Facilities Act, we
5 will allow those in the industry to properly
6 adhere to regulations.

7 A clear and consistent rule will also
8 help eliminate unnecessary duplication of
9 regulations for farmers that would only add to
10 the cost of compliance without providing
11 additional protections for our natural
12 resources.

13 So, again, thank you for considering
14 these rule changes and assuring that the final
15 rule will not only protect our natural
16 resources, but allow livestock production to
17 continue to be an important part of our economy
18 in Illinois. Thank you very much.

19 HEARING OFFICER FOX: Senator, thank you very
20 much for your comments, and both you and
21 Representative Sacia please feel free to stay as
22 long as your schedule allows.

23 Having heard from our legislative
24 representatives for this district, let me resume

1 with some of the preliminary information. I do
2 want to note that present today from the Board
3 also are at my immediate left, Tom Holbrook, the
4 Board chairman and the lead Board member
5 assigned to this rulemaking. At his left is
6 Board member Carrie Zalewski and at her left is
7 Board member Jennifer Burke. At my far right is
8 our fourth Board member, Dr. Deanna Glosser, and
9 I also want to note for the record that present
10 from the Board's technical unit are to my
11 immediate right, Anand Rao, and at my far left,
12 Alisa Liu.

13 The Illinois Environmental Protection
14 Agency filed this original rulemaking proposal
15 on March 1st of 2012, and in an order dated
16 March 15th, the Board accepted the proposal for
17 hearing. The first hearing took place on
18 August 21st in Springfield, the second took
19 place in Belleville, the third in Urbana and the
20 fourth hearing took place in DeKalb, a litany
21 that will be very familiar to many of you, I'm
22 sure.

23 Originally a hearing officer order had
24 set October 31st as the deadline to pre-file

1 testimony for this hearing, the 5th, and on the
2 record of the hearing in DeKalb, the hearing
3 officer did grant an oral motion to extend that
4 deadline and set a deadline of Wednesday,
5 November 7th to pre-file testimony for this
6 hearing.

7 The Board received testimony, pre-filed
8 testimony from this hearing first from Dr. Stacy
9 James on behalf of the Environmental Groups,
10 second from Dr. Peter Goldsmith and Mr. David
11 Trainor on behalf of the Agricultural Coalition,
12 and also from Mr. Donald Keefer. They are all
13 present today, I understand, except for Dr.
14 Goldsmith who we can address at a later point in
15 the hearing, Ms. Manning.

16 In addition, the Agency received -- the
17 Board received from the Agency, rather,
18 pre-filed answers to questions that had been
19 posed by the Board at the second hearing. Ms.
20 Williams, you had expressed some misgiving about
21 being able to prepare responses to those. So I
22 want you to know that the Board appreciates the
23 efforts that you and your colleagues extended to
24 file those and to include those into the record.

1 We thank you for those efforts.

2 Following the order in which the
3 witnesses pre-filed their testimony, we will
4 begin once we have concluded public comments
5 with the testimony of Dr. James and any
6 testimony based upon it. Once those questions
7 have been exhausted, we will turn to the
8 testimony pre-filed by Dr. Goldsmith and Mr.
9 Trainor and questions based upon that, and then
10 Mr. Keefer, once those are exhausted, we will
11 turn to your testimony and the questions that
12 the participants have here based on that.

13 I do want to note for the record that
14 just inside the door there is the sheet on which
15 anyone who did not pre-file testimony but wishes
16 to offer sworn testimony and respond to
17 questions can indicate that they would like to
18 do so, and I will confirm at a break whether
19 anyone has so indicated. I do have in hand the
20 list of folks who would like to offer a public
21 comment. I see that a couple of people have
22 come into the room since we began. I will use
23 this to go through the folks and call them up
24 for comments in the order that they appeared.

1 If anyone has since appeared, we will make sure
2 not to overlook them and make sure that their
3 comments get into the record.

4 Very generally, I do want to note that
5 this proceeding is governed by the Board's
6 procedural rules and under Section 104.426 of
7 those rules. All information that is relevant
8 and that is not repetitious or privileged will
9 be admitted into the record. Please note that
10 any questions that are posed by the Board or the
11 Board's staff are merely intended to develop a
12 clear and complete record and do not reflect any
13 prejudgement on the proposal.

14 And I would ask you for the benefit of
15 our court reporter who will be keeping our
16 official transcript of this hearing to speak as
17 loudly and as clearly as you can. I think the
18 acoustics in this room are pretty good, and I
19 would certainly ask you to avoid speaking at the
20 same time as any other person so that her task
21 is as easy as possible.

22 Do we have any procedural questions
23 before we get underway with public comments?

24 Neither seeing, nor hearing any, let me

1 go through, first of all, the list to make sure
2 that everyone is here and is prepared. The
3 first commenter is Mr. Lawfer, who I do see
4 here. Secondly, Cindy Bonnet; am I pronouncing
5 your name correctly? Very good. Third, Matthew
6 Alschuler. Very good. Esther Lieberman I did
7 see was here. And forgive me if I'm reading
8 this handwriting poorly. Beth Baranski?

9 MS. BARANSKI: That's correct.

10 HEARING OFFICER FOX: Great. Joan Wallace --
11 I'm sorry -- is present. Kathy Hicks. Very
12 good. Roy Rutenberg?

13 MR. RUTHENBERG: Ray.

14 HEARING OFFICER FOX: Ray. I'm sorry. Then
15 Douglas Schneider. Very good. Ken Turner I see
16 in the back. Theresa Westaby. Am I pronouncing
17 that correctly? Great. Susan Turner. All
18 right. Ronald Lee Lawfer. Great. Greg Thoren.
19 Great. Brian Duncan and Matt Ohloff. Very
20 good. All are present.

21 Mr. Lawfer, let's start with you. If
22 you would come up to this chair, please, and
23 offer your comments, we would appreciate you
24 having us get underway.

1 MR. LAWFER: Thank you very much. My name is
2 I. Ronald Lawfer, address 14123 Burr Oak Lane,
3 Stockton. I am a retired dairy farmer and live
4 in and own a farm in Jo Daviess County, Wards
5 Grove Township. Our dairy operation is now
6 owned and operated by family members. I welcome
7 Chairman Holbrook and the members of the Board
8 and thank you for scheduling a meeting in Jo
9 Daviess County. As you can see, this terrain is
10 ideal for livestock production, especially dairy
11 and meat utilizing the hay and pasture
12 production.

13 This rolling land is what attracted
14 many settlers to this area, and as a result, my
15 community was named Stockton because of the
16 large amount of livestock. Many livestock farms
17 in Jo Daviess County have been in families for
18 generations. Farm land in the Lawfer family has
19 exceeded 100 years of continuous operation and
20 ownership. This is the second Pollution Control
21 Board hearing held in Jo Daviess County. In the
22 summer of 1990, an outdoor hearing on proposed
23 odor and manure application rules was held in
24 the park at Stockton.

1 It should be noted that immigrant
2 livestock farmers were attracted to this area by
3 the availability of clean water from the
4 streams, the springs and the shallow dug wells.
5 Farmers understood the need to preserve the
6 quality of the water long before any regulations
7 were born since the passing of the Clean Water
8 Act. Farmers still depend on the sources of
9 water for livestock and family needs. For
10 example, dairy farmers have their well water
11 inspected and sampled regularly by the
12 Department of Public Health in order to maintain
13 the permits to market their milk from the farm.

14 My farm was chosen back in the early
15 1970's for a demonstration project as a result
16 of the recently passed Clear Water Act. This
17 project in cooperation with the Illinois
18 Environmental Protection Agency and the Illinois
19 Beef Council resulted in the construction of a
20 zero runoff settling basin and holding pond
21 receiving manure from a cattle feedlot. This
22 million gallon holding pond is designed to be
23 used for irrigation water for corn and hay
24 ground and emptied on an annual basis.

1 I might add that during the
2 demonstration that went on, the members of the
3 Pollution Control Board at that time back in
4 1973 came to the farm and visited this project,
5 observed the project, as well as other
6 conservation practices that were being put on
7 the land.

8 In the past 20 years in Jo Daviess
9 County the number of dairy farms have decreased
10 by a large percentage. Some of these operators
11 have chosen other occupations or cropping
12 methods because of economic reasons. Others
13 have been visited, often on a drive-by basis,
14 from representatives of the IEPA and offered a
15 proposal to either remodel their manure holding
16 facilities or face administrative action. Faced
17 with these mandated and expensive upgrades, many
18 dairy farmers -- family farmers have chosen to
19 exit livestock production.

20 Today as you consider permits related
21 to livestock operations, I ask you to consider
22 the affordability, cost benefit and good
23 science. Farmers are environmental stewards of
24 their land 365 days, 24 hours a day. They have

1 a more complete understanding of saving the
2 environment they live on than some bureaucrat in
3 Springfield or D.C.

4 Thank you for holding these hearings in
5 Jo Daviess County, and I hope you enjoy your
6 visit.

7 HEARING OFFICER FOX: Mr. Lawfer, thank you
8 for your comment, which we appreciate.

9 Ms. Bonnet, you are next. If we could
10 have you step forward and offer yours.

11 MS. BONNET: Thank you, members of the Board,
12 for the opportunity to speak today. My name is
13 Cindy Bonnet, and I live and farm with my
14 husband in northwest Illinois. Like many
15 farmers in Illinois, our family comes from many
16 generations of family farmers. I have worked
17 for 20 years on our hog confinement and around
18 liquid manure storage. I know what risks it can
19 pose on others. I have even had fellow farmers,
20 their family members and animals die from the
21 effects of working around liquid manure.

22 We decided years ago to get out of the
23 confinement business, in part because of the
24 consolidation of the industry, but in larger

1 part because of its risks and what it did to our
2 health.

3 I have been in this business, and I can
4 tell you, stricter regulations for large CAFOs
5 are needed in Illinois, other than the Livestock
6 Management Facilities Act. The LMFA does not
7 guarantee that CAFOs won't discharge their waste
8 into the waters of the state. Even Warren
9 Goetsch, the Environmental Program Chief from
10 the Illinois Department of Agriculture recently
11 said it was obsolete.

12 Wherever large industrial -- large
13 scale industrial CAFOs have tried to build, it
14 causes division among the communities. It has
15 happened here in northwest Illinois. Because of
16 the LMFA, neighbors and local communities don't
17 have any power to make decisions about where
18 CAFOs are built in their areas. This social
19 injustice has put husbands against wives,
20 neighbors against neighbors, friends against
21 friends and even farmers against farmers.

22 In fact, many farmers are afraid to
23 speak out for fear of being sued by the owners
24 who are very wealthy and powerful. They also

1 don't want to appear as if they are against
2 agriculture. If we stand up against them to
3 protect our water and air, the agro businesses
4 group put us down publicly. These are some of
5 the reasons why this rulemaking is so important
6 for farmers and rural communities in Illinois.
7 These regulations are the only mechanism we feel
8 we have to ensure our environment and way of
9 life are protected.

10 I have witnessed two large CAFOs in my
11 area discharging their waste into streams and
12 stockpiling of manure in a quarry washout that
13 was running off into a creek. Land application
14 of liquid manure on frozen hillsides up slope
15 from a creek and the spreading of silage
16 leachate on fields over ten times the normal
17 rate are just a few things that have happened.
18 We cannot rely on all CAFOs to report what they
19 discharge when they discharge waste.

20 It took local citizens who were
21 concerned about their water being contaminated
22 to let the Illinois EPA know about these
23 problems. This is why an Illinois EPA
24 registration program is so important. The

1 Illinois EPA needs to know where facilities that
2 pose risks are located, and both the Agency and
3 the public need to know how large CAFOs intend
4 to manage their waste.

5 Local communities bear the burden of
6 pollution caused by CAFOs and many times have
7 been left to pay for the cleanup when they
8 leave. We already pay enough taxes and should
9 not be burdened with these added expenses. I
10 don't want my taxpayer dollars spent on state
11 enforcement after the damage has already been
12 done when it would be so simple for large CAFOs
13 to report basic information they should have at
14 their fingertips to the Agency to prevent
15 pollution in the first place.

16 Every year fish kills caused by CAFO
17 discharges and manure runoff happen. This year
18 of extreme draught throughout much of the nation
19 makes water a precious commodity. The scarcity
20 of water makes it even more important to keep it
21 clean. I just learned Wisconsin has proposed a
22 large CAFO asking for permits to drill 47 high
23 capacity wells in the Central Sands area. The
24 largest CAFO in Wisconsin has 8,000 cows. Our

1 county faced the construction of one double that
2 size. If we don't put more environmental
3 restrictions on these large CAFOs, there will
4 not be enough clean water for the rest of us to
5 use.

6 We have a creek that runs through our
7 farm, and we depend on it. We fished in it when
8 we were kids. I have seen wildlife such as blue
9 herons, turkey vultures, hawks, deer, coyotes,
10 foxes, turtles and raccoons near that creek as
11 we work the fields nearby. We need this creek
12 for our livelihood and for the wildlife it
13 supports and for our children and grandchildren
14 to be able to appreciate it.

15 Stricter regulations will not be a
16 burden to the majority of livestock farmers in
17 Illinois. It will be a good way to make the
18 marketing playing field more fair to those that
19 do a good job protecting the environment.
20 Again, I worked for 20 years on our hog
21 confinement, and I know what risks were
22 involved. I urge you to adopt the regulations
23 proposed by the environmental petitioners for
24 the sake of all farmers like me. Please protect

1 the water we farmers and our animals need to
2 allow our businesses to survive. Thank you.

3 HEARING OFFICER FOX: Ms. Bonnet, thank you
4 for your comment. Mr. Alschuler, we are ready
5 for you to step forward, please.

6 MR. ALSCHULER: Thank you for the opportunity
7 to speak today. My name is Matthew Alschuler.
8 I live outside of Apple River, Illinois near the
9 Apple River Canyon State Park here in Jo Daviess
10 County. I am the president of HOMES, a
11 501(c)(3) forum to educate the public on the
12 risks of industrial agriculture and to promote
13 farming that is good for the environment and
14 rural communities.

15 Our organization originally came
16 together about five years ago when our community
17 was faced with the construction of the two large
18 scale industrial confinement dairies to be sited
19 over fractured bedrock in an area of the state
20 known for its easily contaminated aquifer. It
21 was suggested that members of our group take
22 regular water samples from several streams that
23 originate on or cross over the site of the mega
24 dairies. We started sampling in early 2008

1 before any construction occurred at the site and
2 then continued sampling since then. During the
3 construction in '08 we documented a number of
4 discharges of silt and very high totaled
5 suspended solids in two streams that came off of
6 the property and flowed towards the Apple River.

7 Although we provided this information
8 to the Illinois EPA, there didn't seem to be
9 much of a response. The USEPA stepped in and
10 investigated the site and found a drainage pipe
11 that went directly from one of the facility's
12 lagoons into the tributary to the Apple River.
13 This facility was claiming to be a zero
14 discharge facility, but, in fact, it was
15 designed to discharge from its waste ponds to
16 the stream.

17 As you know, the law is written in such
18 a way that the facility can claim they won't
19 discharge so it doesn't have to file for an
20 NPDES permit. In a rush to become operational
21 and well before he obtained several permits he
22 would need to finish construction in September
23 of 2008, the owner of this facility had
24 26,000 tons of corn silage harvested and piled

1 up on a four-acre unlined and unreinforced
2 concrete pad on the site.

3 On February 17th of 2009, the runoff
4 from the thousands of tons of fermented silage
5 had filled the silage leachate pond, and it had
6 to be land applied to frozen, snow covered
7 ground. I have pictures of a tanker truck
8 driving back and forth spraying this highly
9 concentrated nutrient source all over the land
10 and over the stream bed of another tributary to
11 the Apple River.

12 Just a few hours later a neighbor
13 called. The stream smelled like a distillery.
14 Several of us went over there and amidst the
15 strong smell of hard cider, we took water
16 samples and sent them off for testing. The
17 state license lab determined that the BOD of our
18 sample was 2,200 milligrams per liter or about
19 ten times that of raw sewage.

20 We sent pictures of the spraying, the
21 sampling and the lab tests to the IEPA. Nothing
22 happened. Aerial photographs taken soon
23 afterward showed that the leachate pond was
24 rapidly refilling, and then we were hit with

1 some heavy spring rains.

2 On March 10th, 2009, we witnessed a
3 power sprayer being used to pump out the
4 leachate ponds directly over the same tributary
5 that we tested less than a month earlier. I
6 called the IEPA and spoke to an official who
7 told me that he had authorized use of the
8 sprayer since the ground was too soft to use a
9 tanker for application, and the facility warned
10 him that if they didn't empty the pond, it would
11 overflow. We again took water samples, and
12 despite being diluted by the heavy rains, it
13 still had a BOD of 153 milligrams per liter.
14 This too was sent to the IEPA and nothing
15 happened.

16 On August 26th, 2010, we noticed that
17 the same stream was the color of grape Nehi, and
18 again took water samples we submitted through a
19 testing lab. These came back with a BOD of 50
20 milligrams per liter. Photographs and lab
21 results were submitted to the IEPA. Nothing
22 happened.

23 Then, on the morning of October 1st,
24 2010, the stream was purple, and a filled

1 laboratory sample bottle was the color of
2 Barney. I immediately sent photographs of the
3 stream and the bottle containing the purple
4 liquid to both the IEPA and the USEPA and took a
5 sample that was again sent to a testing lab for
6 a full workup. The lab reported a BOD of over
7 400, but no known chemical reason for the purple
8 color.

9 This time the IEPA responded. To his
10 credit, an IEPA official arrived quickly and
11 took control of the situation. He ordered a
12 representative of the facility to build a
13 temporary dam to contain the discharge, had
14 local farmers harvest the corn that was adjacent
15 to the stream and directed a convoy of trucks to
16 pump the purple discharge out of the stream and
17 spread it over the recently cleared field.

18 Trucks were running day and night for
19 almost 48 hours before the bulk of the discharge
20 was contained and land applied. The farmer
21 responsible for emptying the leachate pond
22 admitted to spreading 320,000 gallons of
23 leachate on almost five acres of land, an
24 application rate of 64,000 gallons per acre and

1 well over 10 times the recommended maximum
2 application rate.

3 One week later before they even had the
4 lab results back, the IEPA asked the Illinois
5 Attorney general to prosecute the mega dairy for
6 this latest discharge over a year and a half
7 after their first discharge. None of this would
8 have ever happened save for the dedicated work
9 of the neighbors of the facilities who kept a
10 careful eye out for discharges and photographed
11 and documented everything. If a non-discharge
12 facility can't effectively manage a few hundred
13 thousand gallons of leachate, how can they
14 possibly manage a hundred million gallons of
15 manure to be spread over tens of thousands of
16 hilly acres all criss-crossed with creeks and
17 streams which eventually make their way to the
18 Mississippi?

19 I know the industry is proposing as
20 part of these regulations that a CAFO without
21 animals should not be considered a CAFO subject
22 to NPDES requirements, but when situations like
23 this arise, how can you regulate otherwise?

24 This was more than a "construction

1 area" discharge. How could this proposed change
2 in regulations affect a hog CAFO that just
3 depopulated but still has a full manure pond?
4 If they discharge, would it not be considered a
5 discharge from the CAFO because the site was
6 temporarily empty?

7 Through all this we began the water
8 monitoring of other CAFOs in the area. Local
9 farmers had reported another dairy to us that
10 they thought was polluting. In short, it was a
11 mess. It is located right on the Yellow Creek,
12 which eventually flows into a city park in
13 Freeport, Illinois. So any animal waste
14 discharge to that body of water could have an
15 ill affect on the families that play in that
16 water downstream.

17 To survey the site, we took some aerial
18 photographs on February 13th, 2009, and found
19 that one manure pond and the slurry store were
20 both very full, and one appeared to be
21 discharging into a culvert that led to the
22 creek. Manure was also being spread right up to
23 the edges of fields that bordered the Yellow
24 Creek with no buffer or even a grass strip to

1 prevent the manure from running off into the
2 creek during heavy spring rains.

3 On February 14th, 2009, we visited the
4 site to take samples. There was no
5 precipitation. We found wastewater running
6 directly from the facility down to the gully
7 that ran alongside the road and eventually
8 emptied into the Yellow Creek.

9 On February 16th, we drove by again and
10 saw an enormous, uncontained pile of fresh
11 manure being stored at a quarry right next -- on
12 the banks of the Yellow Creek. Fresh tractor
13 tracks in the snow showed this pile had been
14 recently visited. We took photographs, and on
15 February 18th we sent them to the U.S. and
16 Illinois EPA. The USEPA sent investigators to
17 the site just a few days later.

18 On March 8th, there was a very heavy
19 spring rain and we saw that the quarry flooded
20 and a stream of dark brown frothy water flowing
21 down into the Yellow Creek. We could not access
22 the quarry area, because it's private property,
23 but we did lower our sample lab bottles over the
24 side of the bridge that crossed Yellow Creek and

1 drew up a diluted sample of the discharge. We
2 also sampled the stream of brown fluid coming
3 off of the barns that was discharging into a
4 culvert in the road right of way.

5 Despite the dilution from the
6 rain-filled creek, the quarry samples showed a
7 fecal coliform level of 3,000 colonies per 100
8 milliliters, and a sample that we took straight
9 off the milking parlor showed over 8,000
10 colonies per 100 milliliters.

11 We again sent photographs and lab
12 results to both the Illinois and USEPA. The
13 USEPA followed up with another inspection and
14 ordered Rancho Cantera to remove the manure from
15 the quarry and eventually asked them to apply
16 for an NPDES permit.

17 Unfortunately, none of these discharges
18 would have been detected if it had not been for
19 citizen groups. Our work demonstrates that
20 without a dedicated group of water monitors, a
21 number of serious violations would have gone
22 unnoticed by regulatory agencies. This could in
23 part be due to the fact that the IEPA doesn't
24 even know where a vast majority of these CAFOs

1 are located.

2 Existing rules need to be strengthened
3 and clarified so that the operator, the Illinois
4 EPA and residents all know the rules regarding
5 setback, application rates, safe time to apply
6 and so on. The purpose of these rules is not to
7 punish farmers, but to promote safe operating
8 procedures to protect our water supply while
9 protecting our farmers from fines resulting from
10 these discharges.

11 Most experts will tell you that every
12 large facility will eventually discharge. So to
13 classify these facilities as zero discharge and
14 not requiring a permit is simply ignoring the
15 inevitable. The purpose of an NPDES permit is
16 to set up a procedure for the facility to follow
17 so that it will avoid discharges, and limit them
18 should they occur. The permit also alerts the
19 IEPA and neighbors of the facilities the size
20 and scope of the operation that is taking place
21 in their community.

22 At the very least, the Board should
23 require large CAFOs to report information to the
24 IEPA about their operations. This would go a

1 long way to improving CAFO regulation in
2 Illinois. As water shortages grow, more
3 residents of Illinois will become dependent on
4 groundwater for their sole source of domestic
5 water.

6 It is imperative that we protect this
7 resource for our towns and villages, our
8 families, farmers and our children. As a
9 citizen of the State of Illinois, I am pleased
10 that our group is able to help protect our
11 environment and water by reporting these
12 discharges. My concern is that in more sparsely
13 populated areas where residents are more afraid
14 of retribution, these discharges would not have
15 been reported.

16 It is the responsibility of the IEPA to
17 know the locations of all these CAFOs and to
18 make periodic inspections of the facilities.
19 Not to penalize them, but to prevent the kinds
20 of behavior that lead to discharges, fish kills,
21 polluted streams and wells and endangerment of
22 our drinking water and public health. I again
23 thank you for the opportunity to speak today.

24 HEARING OFFICER FOX: Mr. Alschuler, thank

1 you for your comment. Ms. Lieberman, we are
2 prepared for you if you could step forward,
3 please.

4 MS. LIEBERMAN: My name is Esther Lieberman,
5 and I represent the Jo Daviess County League of
6 Women Voters. We are very grateful for this
7 opportunity to participate in this hearing. Our
8 league has a long-standing position on the
9 protection of groundwater. We have observed and
10 tried to understand the issues raised by the
11 divisive siting process and litigation related
12 to the proposed CAFO operation in our county.

13 We've come away with questions about
14 the sufficiency of the regulations protecting
15 against groundwater contamination in areas such
16 as ours underlaid by carbonate bedrock.

17 Are the siting regulations based on the
18 best scientific understanding of the karst
19 features? We believe that all of us who live
20 and work here would benefit from greater
21 scientific understanding of what lies beneath
22 the surface.

23 The work of the Northeastern Wisconsin
24 Carbonate Bedrock Region Task Force, also known

1 as the Karst Task Force, is an example of the
2 kind of cooperative efforts we believe could be
3 replicated in our region. They acted to develop
4 more cooperation among federal, state and local
5 agents -- agencies and units of government
6 responsible for the regulation of agriculture
7 and other types of waste.

8 Their executive summaries state, It
9 became clear that the physical environment
10 cannot be characterized, understood or protected
11 by merely locating and dealing with karst
12 features at the surface. Rather the controlling
13 factor is the underlying fractured carbonate
14 bedrock.

15 The League of Women Voters of Illinois
16 and local leagues including us will support
17 legislation promoting sustainable agriculture
18 and protection of our environment. We certainly
19 support our farmers and appreciate that they are
20 a major reason for our special place in Illinois
21 and know that they care about the environment,
22 working hard to keep it this special place.
23 Thank you very much for coming and for giving us
24 the opportunity to witness and participate in

1 this hearing.

2 HEARING OFFICER FOX: Very good, Ms.
3 Lieberman. Thank you for your comment.

4 Ms. Baranski, we are prepared for you
5 to step forward at this point.

6 MS. BARANSKI: Good morning. My name is Beth
7 Baranski. I am a resident of Jo Daviess County,
8 and I am here to express concerns about the
9 scientific underpinnings of the code and
10 proposed amendments. I served on the Jo Daviess
11 County Board and was involved in the siting
12 process for the CAFO proposed near Nora. At
13 that time I studied the LMFA and associated
14 regulations. I believe there are confusing and
15 contradictory aspects of these guiding documents
16 that caused a contentious battle.

17 The result was a tremendous expenditure
18 of dollars and social capital that has left our
19 county depleted and divided. Though I realize
20 you are working on a different document, they
21 are related, and I feel that opening Title 35
22 Parts 501, 502 and 504 of the code for amendment
23 is an opportunity to begin to improve the
24 overall situation.

1 I attended your hearing in DeKalb and
2 recall concerns expressed about the
3 administrative code amendment being consistent
4 with other existing regulations. Rather than
5 trying to match existing regulations that may be
6 problematic, I would ask that you take this
7 opportunity draw a clear, bright line that truly
8 protects the environment. Let the other
9 regulations be updated to become consistent with
10 the standards that you set. This would give
11 farmers certainty about the ways they should
12 operate, which would allow agriculture
13 development to move forward with confidence.

14 The siting controversy here in Jo
15 Daviess County was like a Karst 101 class for
16 me. In reading Parts 501, 502 and 504, I noted
17 the references to sinkholes and understood the
18 attempt to avoid water contamination by avoiding
19 sinkholes. However, it's my current
20 understanding that sinkholes are a symptom, if
21 you will, of karst geology and not the
22 definition of it.

23 So I was curious to see the technical
24 supporting documents that were relied on when

1 determining that, for example, there must be a
2 200-foot vegetative, crop stubble or crop
3 residue buffer between the field and any down
4 gradient surface waters, conduits, waterways,
5 open tile intake structures, sinkholes and
6 agricultural wellheads.

7 The technical support document
8 citations given under, "Fields That Are Suitable
9 For Winter Application" relied on a portion of
10 the LMFA which reads, A provision that livestock
11 waste may not be applied within 200 feet of
12 surface water unless the water is upgrade or
13 there is adequate diking and waste will not be
14 applied within 150 feet of potable water supply
15 wells.

16 This documentation strikes me as
17 insufficient. At the DeKalb hearings there were
18 also comments made about how expensive it would
19 be to fly over a farm or do the broad general
20 site analysis needed to identify concerns about
21 environment sensitivity, the suggestion being
22 that this would place an undue burden on the
23 individual farmer.

24 Fortunately there are entities that

1 conduct, research and gather data in a
2 never-ending search for an improved
3 understanding of the hydrogeology and soils in
4 our state. I would suggest that you rely on
5 them explicitly in the code to make
6 determinations about the general conditions in
7 an area and to prescribe the site specific
8 testing that should be required for a proper
9 detailed assessment.

10 With objective scientists both making
11 the general determinations and prescribing the
12 specific testing, I believe you can eliminate
13 current inconsistencies and provide certainty
14 for all parties. I ask you to amend the code on
15 the basis of sound science. If this is done, I
16 believe the public will feel confident that the
17 environment is being protected, that enforcement
18 concerns will be reduced and that farmers will
19 be freed up to do what they do best. Time and
20 resources in all these areas can be directed
21 toward more positive ends. Thank you.

22 HEARING OFFICER FOX: Thank you for your
23 comment, which we appreciate. Ms. Wallace, we
24 are prepared for you to step forward. Thank

1 you.

2 MS. WALLACE: Good morning. My name is Joan
3 Wallace. I have resided in the City of Galena
4 for 12 years. I have never been negatively
5 impacted by CAFO pollution because I have never
6 lived near one, and yet here I am. I became
7 interested and involved back in '07 and '08 when
8 it was announced that A.J. Bos planned to build
9 his mega dairy in Jo Daviess County.

10 Setting aside the horrors of water
11 pollution, air pollution, stress on roads,
12 depressed real estate, local businesses
13 declining, I was astounded by the forward pace
14 of this project.

15 Before I moved here, I lived in an
16 unincorporated area of Lake Zurich, Illinois in
17 Lake County. The minimum lot sizes were one
18 acre. All lots were well and septic. The house
19 I purchased in 1987 had been built in 1955. The
20 well and septic passed inspection prior to my
21 taking possession, but about 12 years later the
22 septic failed and needed complete replacement.
23 This required engineering drawings, soil perc
24 tests and a permit. The toil type called askum,

1 A-S-K-U-M, II had since been downgraded to
2 unsuitable.

3 I was therefore required to put in an
4 above-ground Wisconsin mound system with a lift
5 station. Twenty truckloads of sandy loam were
6 brought in. The cost back then was \$12,500.
7 The setback requirements had to be not less than
8 90 feet from my well, neighbors' wells and
9 neighbors' existing setbacks. I also had to
10 have sufficient land for 100 percent replacement
11 in the event the new system failed.

12 Clearly, the burden was on me to ensure
13 there was no negative impact to my neighbors,
14 and that's as it should be. Prior to my
15 retirement to Galina, I worked for 26 years for
16 a large Chicago suburban real estate developer
17 who built custom homes, commercial buildings,
18 shopping centers, apartments, condominium
19 developments, planned unit developments, either
20 HUD or conventionally financed.

21 Long before ground was ever broken,
22 numerous studies were required; engineering
23 designs for retention ponds, detention ponds,
24 calculations for the 100-year and 400-year

1 rains, traffic impact studies, school impact
2 studies and more. During construction, periodic
3 inspections were made by lenders and various
4 divisions of whichever municipality's building
5 department we were working with.

6 Substantial cash bond requirements were
7 necessary to ensure the work was properly done
8 and stood the test for a specified period of
9 time. Clearly the burden was on the developer,
10 not only to make certain that product was up to
11 code, but also for the environment and safety of
12 the surrounding area. Again, as it should be.

13 So when I compare these two examples of
14 a homeowner and a real estate developer, it
15 would seem consistent that large CAFO
16 owners/developers should be subject to more
17 stringent requirements as most other industries
18 are.

19 Regarding the CAFO industry, why is
20 there no cash bond requirement to ensure the
21 potability of water, the absence of particulates
22 in the air, the maintenance of roads for a
23 project the size of the mega dairy or a large
24 hog farm or poultry facility? Why do CAFOs get

1 a free pass when they produce more waste than
2 some cities? Why aren't they required to submit
3 a waste management plan for approval from the
4 IDOA or EPA?

5 As it is, the IEPA has responsibility
6 to ensure compliance with the Clean Water Act.
7 Shouldn't all large CAFOs be required to submit
8 their plans to the Agency and be required to
9 follow the same standards regardless of whether
10 or not they are permitted under the LMFA or
11 NPDES program?

12 The record shows many CAFOs have
13 polluted regardless of approvals they have
14 received under the LMFA and regardless of
15 whether or not they had NPDES permits and even
16 with their unapproved waste management plans on
17 file.

18 Last, but not least, regulations now
19 are so lame that the IEPA doesn't even have a
20 complete inventory of where all these CAFOs are.
21 It's often not until they receive a complaint
22 about dead animals, dead animal parts, horrific
23 smells or water pollution from an overburdened
24 manure holding pond.

1 I would like to continue living CAFO
2 impact free, no matter where I would choose to
3 live, and for this reason, I thank you for
4 allowing me to speak.

5 HEARING OFFICER FOX: Ms. Wallace, thank you
6 for your comment.

7 Ms. Hicks, we are prepared for you to
8 step forward, please.

9 MS. HICKS: I thank you for coming here to Jo
10 Daviess County. It's easier to be here than for
11 me to travel. My name is Kathy Hicks. I and my
12 husband are retired farmers living on the farm.
13 We are fifth generation on the farm. We rent
14 our pasture and crop ground to a neighbor who
15 has a small dairy.

16 My farm is in Jo Daviess County, the
17 south end being less than a mile from what was
18 proposed as the large mega dairy. Our grounds
19 have five natural springs, three of which run
20 year round. Because my land is of karst nature,
21 I am concerned about water pollutions from large
22 liquid manure and leachate ponds and
23 overspreading of those materials contaminating
24 the groundwater and aquifers.

1 We had an instance of this when the
2 spreading of leachate of a concentrated
3 magnitude on a small area led to the pollution
4 of a creek leading to the Apple River. With the
5 nature of this land, I am concerned about
6 groundwater contamination getting into our
7 aquifer and wells. Twice since we have lived on
8 the farm our creeks and the pasture have been
9 polluted. Once was from a fertilizer plant in
10 Warren, which had a spill into the Wolf Creek.

11 We had a fish kill all the way to
12 Hanover. I had a deformed calf born that year,
13 and five cows did not a produce a calf. Then we
14 had a small fertilizer plant across from the
15 house owned by a neighbor. That had a spill.
16 That killed the grass along the creek in our
17 spring lot for two years.

18 The spills do not have to be
19 intentional to cause damage. I think the law
20 should take into consideration what mother
21 nature can do and protect us from carelessness
22 also. We have just this one earth to pass to
23 our children and future generations. It is
24 important that we keep the potable water we have

1 left clean.

2 We also owned a hardware store in
3 Warren for 17 years. When we bought the store
4 in July of 1978, there were businesses in every
5 storefront. As small farms gave way to larger
6 farms, we watched our town lose businesses one
7 at a time. This just took 20 years. We had
8 bought our business in 1978. I think that
9 because of the nature of a CAFO and documented
10 pollution across the U.S., we have to give the
11 ICCW, the USEPA and the IEPA the laws and means
12 necessary to do their jobs.

13 We know that self-regulations does not
14 work when it defies their own interest. I think
15 CAFOs should be registered. Laws controlling
16 them should take into consideration the health
17 and common good of all those they have an effect
18 on, as should all industries that have the
19 probability to pollute. And thank you.

20 HEARING OFFICER FOX: Thank you for your
21 comment, Ms. Hicks.

22 Mr. Ruthenberg, we are ready for you to
23 step forward, please.

24 MR. RUTHENBERG: My name is Ray Ruthenberg

1 from Woodbine Township just east of here, and I
2 am a retired water and wastewater utility
3 manager and a certified operator. Previous to
4 retirement I had a Class A water certificate,
5 the highest ranking certificate in Illinois, and
6 a Class 2 wastewater certificate. My 38-year
7 career included ten years of industrial
8 wastewater treatment at Argonne National
9 Laboratory, 4 years as a Public Works
10 Superintendent in Blue Island, Illinois, 24
11 years in Jo Daviess County at Apple Canyon Lake
12 and The Galina Territory, both in a karstic
13 region of our county.

14 Part of that 24 years included teaming
15 up with the Health Department to find and seal
16 up old abandoned farm wells, as these wells and
17 crevices pose a direct threat of pollution
18 entering the drinking water aquifers. During
19 that 24 years we had hundreds of water line
20 breaks, usually due to the rock cuts -- big
21 surprise -- and at least 80 percent of those
22 leaks never surfaced. They found their way to
23 fractured rock cracks, crevices and then flowed
24 to the lower water aquifers. Only isolating

1 sections and using geophones, usually at night,
2 were we able to pinpoint the location and repair
3 those leaks.

4 I believe these occurrences point out
5 the risk of spreading millions of gallons of
6 liquid manure over land that is underlain with
7 karst, fractured rock and field tiles. A 5,000
8 cow dairy would need to spread approximately
9 735,000 gallons of manure per day over a short
10 period between harvest and spring planting.

11 This demanding schedule invites spills,
12 runoffs and overtop events, all of which
13 endanger our environment or pose a threat to our
14 drinking water. For the past four plus years I
15 have kept track of all significant spills across
16 the county, and those folders are full of
17 egregious events. This is three years of
18 spills. It's about an inch thick.

19 One of the most tragic was the runoff
20 event in Milwaukee in 1993. Heavy rains caused
21 runoff of farm fields to get into the drinking
22 water intakes, overloaded their treatment
23 capacity resulting in 400,000 people getting
24 sick and 104 died. I believe it is not a matter

1 of a spill will occur. It is just a matter of
2 when these spills will occur, and I believe a
3 CAFO should not ever be permitted in a karstic
4 region.

5 In addition, where soil conditions are
6 favorable, I believe we need increased setbacks
7 from residential wells to reduce the possibility
8 of contaminated wells and sick people. I thank
9 the Board for coming to Jo Daviess County.

10 HEARING OFFICER FOX: Mr. Ruthenberg, thank
11 you for your comment. Mr. Schneider we are
12 ready for at this point. Please step forward.

13 MR. SCHNEIDER: Good morning. I would like
14 to thank the Pollution Control Board for holding
15 these hearings and the opportunity to comment.

16 My name is Doug Schneider. The family
17 has had dairies in Stephenson County for five
18 generations. My wife, Trish, was also raised on
19 a dairy farm, and together we own what we call
20 Schneidairy farms. Stephenson and Jo Daviess
21 Counties are significant areas for dairy
22 production in our state. These two counties
23 produce about one-fifth of the state's milk and
24 generate nearly \$70 million in output from the

1 dairy industry. Their rolling hills are very
2 suitable for dairy production, and it has been
3 an economic cornerstone, annually creating
4 nearly \$500 million in local economic activity.

5 Trish and I drink the same water as our
6 cows, as we have since we were children. So do
7 our children and our grandchildren. It was
8 noted earlier as a prerequisite to sell milk,
9 the State Department of Public Health annually
10 tests our water to ensure its safety.

11 On our farm we have a comprehensive
12 nutrient management plan. It's a living
13 document, one that is constantly being reviewed,
14 updated and improved. We hire a consultant to
15 help us manage this effort. Being able to use
16 manure for crop nutrients is beneficial for two
17 primary reasons. First, by applying at rates
18 dictated by our CNMP, we reduce the cost of
19 fertilization. Secondly, when applied as
20 specified by the CNMP, it is indeed a very green
21 and sustainable process since we produce the
22 nutrients so close to our fields and only apply
23 what the crops need.

24 Commercial fertilizer includes nitrogen

1 which is often in manufactured in Trinidad,
2 phosphorus, which is mined in Florida and
3 potassium, which is mined in Canada. These
4 nutrients are then transported thousands of
5 miles to our fields, which do -- the fields
6 which are not able to receive manure.

7 A comprehensive nutrient management
8 plan is a significant investment for our
9 operation, and it serves as a prime example of
10 the cost of doing business from a regulatory
11 perspective.

12 Last week I attended a dairy meeting
13 where four professionals spoke of working with a
14 growing number of dairy producers who either are
15 in the process or who are facing bankruptcy.
16 The capital required to dairy is large, and the
17 profit margins are often small. Smaller farms
18 will be challenged in responding to regulations
19 that will be costly or require an inordinate
20 amount of human resources.

21 The regulations impacting the dairy
22 industry need to be science base and rooted in
23 common sense. We are proud of the work we as
24 dairy producers do in Illinois. Our farm

1 utilizes many conservation practices including
2 no till planting, conservation tillage, planting
3 cover crops, crop rotation strip cropping and
4 the planting of forages.

5 We consider ourselves to be
6 conservation stewards and realize that both land
7 and water must receive our care. Our son
8 desires to become the sixth generation of our
9 family to dairy in Stephenson County. As an
10 industry, we face many challenges from many
11 sources. The state needs to assure that we are
12 in a responsible, yet reasonable and therefore
13 competitive position with other states, so our
14 dairy industry can thrive into the future and
15 not be placed into a position of a regulatory
16 quagmire, which would create an uncertain future
17 for dairy and the rest of the animal
18 agriculture. Thank you.

19 HEARING OFFICER FOX: Mr. Schneider, thank
20 you for your comment.

21 Mr. Turner, we are ready for you to
22 step forward, please.

23 MR. TURNER: I do have handouts for the Board
24 and pictures if you wanted to distribute those

1 now or later, and there is probably enough for
2 the Board and for the court reporter.

3 My name is Ken Turner. I am a science
4 teacher, father of five. I am from Warren,
5 Illinois here in Jo Daviess County, and I
6 appreciate the opportunity to speak to you
7 today. I am here to talk to you about zero
8 discharge CAFOs. Researcher after researcher
9 has put the measurement of documented leakage
10 from the clay lines into the ponds at 750 to
11 1,250 gallons per acre per day, researchers like
12 Schulte, Parker, Benson. Let's just refer to it
13 as a thousand gallons per acre per day from
14 manure ponds.

15 In litigation in Jo Daviess County, the
16 senior engineer for the CAFO, the mega dairy
17 that's been referred to before, testified that
18 it would leak a little less than a thousand
19 gallons per day per acre. Never, ever accept
20 the term "zero discharge" at face value. Just
21 think a thousand gallons per acre per day.

22 I am here to talk to you about the
23 minimum required distance separating the aquifer
24 and the bottom of a manure pit. There is none.

1 Right here in Jo Daviess County the CAFO that
2 was proposed would have placed a manure pit an
3 average of seven feet above the aquifer and as
4 close as three feet, again according to the
5 testimony in court from the senior engineer, is
6 it prudent to place leakage of 40,000 gallons
7 per day within three feet of the aquifer that
8 serves thousands?

9 I'm here to talk to you about safety
10 nets that do not exist. Karst, dangerous enough
11 to be mentioned in the LMFA, we need experts to
12 determine whether there is karst or not. In the
13 case I have been referring to, six different
14 regional to international experts on karst sent
15 letters to the IDOA stating that the area in Jo
16 Daviess County was karst.

17 A sinkhole formed near the manure ponds
18 of the large CAFO during construction. I have
19 that picture for you. I would like to enter it
20 into the record. That's on the site. Despite
21 the advice of experts and all the evidence, the
22 IDOA permitted the construction of the facility
23 and its waste ponds with no additional
24 safeguards. I guess it's anticlimactic to state

1 that it ultimately discharged.

2 I'm here to -- certainly here to talk
3 to you about current regulations. They are
4 insufficient. I wrote many letters to the IEPA
5 detailing my concerns about the proposed CAFO in
6 our area. I wrote about the two streams on
7 site, the conduit built from the manure holding
8 pond directly to those streams. That's another
9 picture -- actually two more pictures, this one
10 and this one that I would like to enter into the
11 record.

12 I wrote, The local geology, the
13 expected waste leakage into the site's
14 underlining karst aquifer and the significant
15 nexus between the aquifer and the leaking manure
16 ponds that would result in the contamination of
17 Illinois' surface waters, our waters, our
18 beautiful Apple River, a biologically
19 significant stream and a prized tourist
20 attraction. In addition to contributing to our
21 quality of life, it is an economic engine for
22 the county.

23 I finally received a letter back from
24 the Director of the IEPA stating that no action

1 would be taken until after the facility
2 polluted. There was no evaluation, no
3 investigation. So I turned to the USEPA and
4 provided them the information I had provided to
5 the IEPA. In part, that's this, which is also
6 attached. This is a complaint regarding an
7 NPDES permit for the Tradition South Dairy of Jo
8 Daviess County, Illinois.

9 The USEPA found merit to my concerns
10 and determined that a significant risk was
11 present. Us citizens should not have to take
12 these extraordinary measures to protect their
13 children's rights to clean air and water.

14 As it turned out, the facility was
15 designed to discharge from at least one of its
16 manure storage ponds through a pipe to the
17 stream. In one of the USEPA's investigations on
18 March of 2009 it was found this pipe was
19 discharging to the stream from one of the large
20 manure storage structures being built. The
21 facility discharged from other areas of the site
22 on several other occasions as well. That
23 pollution should have been avoided.

24 I am sensitive to the fact that our

1 state agencies have excellent people working
2 with limited resources in stressful times. My
3 point is to show that the regulatory system is
4 flawed. The state needs stronger regulations to
5 equip the Agency to protect the citizens. I
6 know there has been a pattern of regulatory
7 failures beyond my case. The IEPA noted 244
8 regulatory violations in 2011, including water
9 pollution problems from 12 pit discharges, 12
10 field applications, 6 lagoon overflows, 7
11 intentional discharge dumpings and others.
12 These kind of problems could and should be
13 prevented.

14 I'm here to talk to you about a wiser
15 choice. Wouldn't it be wiser to place the
16 manure farther from the aquifer? Wouldn't it be
17 wiser to place the manure farther from the
18 river? Wouldn't it be wiser to require
19 registration of large CAFOs? Wouldn't it be
20 wiser to know how many animals were on site?
21 Wouldn't it be wiser to know if a CAFO has an
22 adequate nutrient management plan?

23 The Illinois EPA needs to have the
24 ability to better regulate large CAFOs. There

1 needs to be another check-in place besides the
2 LMFA before pollution occurs. Some will say
3 that we need these CAFOs for economic
4 development. That is a lie. In a report
5 commissioned by the North Dakota Attorney
6 General, Dr. Stofferahn summarizes, In the case
7 of large livestock confinement operations,
8 communities will be at risk for environmental
9 and health problems, entailing the need for
10 state and local government intervention.

11 Communities that lose moderate sized
12 family farms will lose a base of middle class
13 producers and experience rifts in social fabric
14 including population decline. These communities
15 are likely to have declines in other businesses
16 and in the local property tax base and may
17 require government aid for social and public
18 services.

19 According to the Institute of Science,
20 Technology and Public Policy, communities with
21 industrial animal facilities have higher
22 unemployment rates. Small independent family
23 farmers offer far more benefits to communities,
24 10 percent more permanent jobs, 20 percent more

1 local retail sales and a 30 percent increase in
2 per capita income.

3 Some will say the CAFOs provide the
4 means for increasing the tax base. Another lie.
5 Property values actually go down. Here's a
6 quote, "It is clear from the above case studies
7 that diminished marketability, the loss of use
8 and enjoyment and loss of exclusivity can result
9 in diminishment ranging from 50 percent to
10 nearly 90 percent of otherwise unimpaired value.
11 That's from the Appraisal Journal. That's not
12 from an environmental magazine, the Appraisal
13 Journal of 2001.

14 If your house loses 50 to 90 percent of
15 its value, you probably don't have much value
16 left in your house. There is no economic
17 prosperity if your region becomes known for its
18 pollution or your aquifer is polluted.

19 Let's also note that the County Board
20 of Jo Daviess County voted 11 to 5 against the
21 particular mega dairy because of improper siting
22 to the LMFA. Furthermore, our county, and thank
23 you for visiting, has two referendums, one
24 requesting increased setbacks, one expressing a

1 desire for a moratorium on large CAFOs.

2 In sum, CAFOs are built too close to
3 rivers. They are built too close to aquifers.
4 They claim no discharge, but they do and often
5 don't get caught or punished. They increase
6 poverty and decrease property values. Heed the
7 plea of the rural communities. Provide us with
8 protection. We require registration. We
9 require greater setbacks from rivers and
10 aquifers, and the next time you hear zero
11 discharge, please remind yourself, a thousand
12 gallons per acre per day. Thank you.

13 HEARING OFFICER FOX: Mr. Turner, thank you
14 for your comments.

15 Ms. Westaby, we are ready for you to
16 step forward, please.

17 MS. WESTABY: Good morning. My name is
18 Theresa Westaby. I would like to thank the
19 Board for giving me the opportunity to speak
20 today. My husband, Delmar, and I own and
21 operate a farm in Stockton, Illinois. We milk
22 81 registered Holsteins and we farm 645 acres.
23 Our farm was started in 1861 and has been passed
24 from father to son for five generations. Our

1 two sons will be the sixth.

2 We have owned the exact same acres
3 purchased originally in 1861 and 1862. Needless
4 to say, we have worked hard and loved this land
5 for over 152 years. For over 50 years, our farm
6 was a conventional dairy, but in 2002, we turned
7 our farm organic, and we have been certified and
8 successfully selling organic for over ten years.
9 Our National Organic Standards, Oregon Tilth
10 Certifier Standards and Organic Valley Processor
11 Standards all regulate how, when and where we
12 spread our liquid manure from our farm.

13 We are not allowed to spread our liquid
14 manure on frozen ground, snow covered, or
15 saturated ground. We have to submit a yearly
16 manure management plan that includes soil
17 testing, where manure was spread, what cover
18 crops, crop rotations and tillage on a yearly
19 basis.

20 When our organic inspector comes every
21 year, we drive the fields to make sure that what
22 we submitted matches what they see first-hand.
23 We have to limit how much we can apply to each
24 field, and it's based on the soil tests and

1 previous crops grown. In other words, even with
2 just 81 cows, we are very much regulated on how
3 and what we can do. We knew this going in and
4 turning organic. It was part of the process,
5 and it has not been a hardship.

6 Our farm is self-sustaining without
7 government grants, no government subsidies or
8 supplemental off-farm job incomes. Organic
9 farming has enjoyed 15 to 20 percent growth
10 yearly for the last 10 years, with Illinois
11 producing around 15 percent of the national
12 sales.

13 This in spite of the rhetoric of it
14 being called a hoax and that it can't feed the
15 world. It's offensive to hear that the ag
16 industry groups are claiming the Illinois EPA
17 proposed regulations will cause confusion,
18 economic hardship and be overly burdensome.
19 CAFO owners are intelligent businessmen and
20 women. If they are able to manage million
21 dollar facilities, thousands of animals and
22 hundreds of employees, they should be able to
23 follow regulations easily.

24 The LMFA when written protected farmers

1 and was considered very good, but it was written
2 many years ago when the largest CAFOs were based
3 mainly in California. Now that they have become
4 more prevalent in Illinois looking for water and
5 close feed sources, the state's environmental
6 regulations need to be improved to ensure our
7 water resources are protected.

8 The LMFA only regulates the
9 construction of new CAFOs. It doesn't regulate
10 them once they are in operation, and because
11 CAFOs rarely own enough of their own land to
12 spread their manure on, this causes many
13 problematic issues. Spreading conventional
14 manure on organic land is currently being
15 debated and is expected to be prohibited within
16 the next year.

17 How does this affect us? If a
18 conventional farmer near us spreads liquid
19 manure from a CAFO and they spread in the
20 winter, on saturated ground or just over-apply
21 to the ground, it can run off onto our land, and
22 it would decertify our ground. Also, if a CAFO
23 spreads next to a creek that runs into a pasture
24 that our animals are in, the water is then

1 considered unacceptable and again, we pay the
2 penalty. The way we farm doesn't affect our
3 neighbors. We do no harm. But if the
4 regulations on where and how the manure is
5 managed are weak, we can be seriously harmed.

6 Farms and farming has changed for sure.
7 If you look around, there is less hay and
8 pasture available. Farmers are planting every
9 possible acre in corn and beans, not because of
10 regulations, but because they can make more
11 money selling that, and no one blames them for
12 that.

13 But that means less pasture and legume
14 crops to absorb the soil -- and hold the soils.
15 It's been our privilege to own and love our farm
16 for over 152 years, and it should be a privilege
17 to begin a new farm on Illinois soil. As a
18 former minister of my church once told me,
19 Theresa, you can say you own your land, but
20 truly it's just borrowed from God to be used by
21 the next generations to come. When you leave
22 it, be proud of the legacy you have left for
23 them.

24 Asking large CAFOs to respect and

1 adhere to more stringent regulations that will
2 protect all Illinois farmland and all our water
3 is such a legacy. Thank you.

4 HEARING OFFICER FOX: Ms. Westaby, thank you
5 for your comment. We are ready for Ms. Turner
6 next, please, if you would step forward.

7 MS. TURNER: I would like to submit copies of
8 my comments to the Board and to the court
9 reporter.

10 My name is Susan Turner, and I live in
11 Warren, Illinois right here in Jo Daviess
12 County. Thank you for allowing me this
13 opportunity to express my concerns and desire to
14 see that our water is protected from
15 contaminants due to spills, dumping and other
16 improper methods of spreading and storing liquid
17 manure and leachate by CAFOs.

18 Since I live in a rural community, I
19 have been witness to many of these improper
20 practices that have resulted in undocumented
21 discharges. I have witnessed from the side of
22 the road visually as liquid was sprayed on snowy
23 fields. This was often accompanied by a foul
24 odor. Sometimes I could smell the odor, and

1 sure enough, the field application was
2 occurring.

3 It was always the same area. I
4 witnessed this five times from February of 2009
5 to September of 2010. And we have a little
6 picture of the same area being sprayed over and
7 over. I have also seen stacks of manure stored
8 at the edge of Yellow Creek in Kent. I have
9 seen over-application of liquid manure that has
10 pooled enough that it gets to the road or a
11 ditch with no buffer zone.

12 As these pollution problems occurred, I
13 was also sitting in the courtroom listening to
14 skewed science by the paid expert witnesses for
15 the proposed Traditions mega dairy. We felt the
16 mega dairy was improperly sited and illegally
17 permitted by the Illinois Department of
18 Agriculture. We did not think the granting of
19 the construction permit upheld the Livestock
20 Management Facilities Act, yet all of the paid
21 experts at trial said it was a zero discharge
22 facility.

23 Time would tell that this was not the
24 case, and this can be seen at these facilities

1 that claim to be modern, state of the art
2 operations. With regard to the issue of karst,
3 the paid experts used what we thought was skewed
4 science to focus on and conduct inadequate tests
5 that would only prove where the karst was not.
6 The soil borings they used to test the area are
7 the size of a soup can. They used about 18
8 borings spread over 1,000 acres, and this is the
9 equivalent of searching for a needle in a
10 haystack with a pair of tweezers.

11 More skewed science is saying the
12 aquifer will be protected because the same liner
13 under the manure storage is really the filter
14 for 43 acres, 20 feet deep filled with liquid
15 manure. My refrigerator's water filter needs to
16 be replaced every four to six months because it
17 becomes embedded with impurities. This is with
18 simple tap water, not manure. The clay in the
19 soil gets saturated with impurities, and there
20 is no filter to replace. And when you have a
21 sinkhole or karst bedrock fracture, forget the
22 clay and soil filtering anything. The waste has
23 a direct pathway to the groundwater that we all
24 depend on.

1 The League of Women Voters hosted a
2 mega dairy seminar back in June of 2011 here in
3 Jo Daviess County. At the seminar, Warren
4 Goetsch of the Illinois Department of
5 Agriculture was honest enough to say that the
6 LMFA is obsolete. Warren also stated that
7 manure storage wouldn't leak for maybe 10 to
8 20 years unless a crack forms, and living on a
9 karst region, this really cracked me up.

10 The message I am trying to give you
11 today is that the LMFA is outdated, and it does
12 not in reality stop the runoff and the
13 discharges from CAFOs, because they do occur.
14 The Traditions mega dairy was actually a
15 discharge facility, despite IDOA's determination
16 that it met standards of the LMFA and despite
17 what all of the dairy's paid experts said.

18 Even though we lost our trial against
19 the facility because the judge relied on the
20 testimony of the dairy's paid experts, what came
21 to pass shows that sometimes you have to have
22 other checks and balances in place. After the
23 trial, the mega dairy polluted the stream that
24 leads to the Apple River with the purple

1 discharge that everybody knows about, and had it
2 been allowed to proceed as planned, it would
3 have contaminated our aquifer because of the
4 karst.

5 The federal EPA ended up getting
6 involved and mandated the mega dairy conduct the
7 tests that should have been conducted to begin
8 with to identify the existence or nonexistence
9 of karst under the waste ponds and its land
10 application fields. At first the mega dairy
11 refused. Perhaps it was because they were just
12 afraid of what the tests would find.

13 But eventually the Department of
14 Justice weighed in and things started to move in
15 the right direction. To date, the dairy has yet
16 to complete the required tests. Instead, it
17 decided to dismantle the CAFOs nearly
18 constructed barns and abandon the site.

19 Had there been another check and
20 balance in place, such as oversight by the
21 Illinois EPA to begin with, we all could have
22 saved a lot of money and time. Think of the
23 investment the mega dairy made and the land and
24 the attorney fees and the high paid experts just

1 to walk away in the end.

2 This is all to say that the Illinois
3 Pollution Control Board should enact clean water
4 regulations that provide protections for
5 citizens and their water. If you do not, the
6 broken and dysfunctional regulatory mechanism
7 dictated by the toothless LMFA will persist. If
8 we continue to allow the LMFA to serve as the
9 proverbial excuse to continue this dysfunction,
10 polluted water will be the only things our
11 children and their children will ever know.

12 HEARING OFFICER FOX: Ms. Turner, you
13 mentioned documents that you wanted to attach to
14 your comment. I can take those in just a
15 second.

16 The second Mr. Lawfer is our next
17 commenter. Mr. Lawfer, if you step forward
18 while she does that, we will be ready for you in
19 just a second.

20 MS. MANNING: Point of order, Mr. Hearing
21 Officer. These pictures that are being
22 submitted with public comments, are you
23 numbering them and getting copies to everyone?
24 Because I just haven't seen any of them and

1 would like to at some point.

2 HEARING OFFICER FOX: And, in fact, I can
3 answer your question in two parts. These would
4 be simply noted in the record as if they had
5 been attached to a written public comment that
6 would be received rather than a hearing exhibit
7 sponsored by a witness. If you would like to
8 take a look at them, I am more than willing to
9 make them available for you, Ms. Manning.

10 MS. MANNING: Thank you.

11 HEARING OFFICER FOX: Mr. Lawfer, please go
12 ahead.

13 MR. LAWFER: Good morning. To the Pollution
14 Control Board and Hearing Officer, Timothy Fox,
15 I would like to welcome you to Jo Daviess
16 County. I am Ronald Lee Lawfer, a fifth
17 generation dairy farmer from this county. My
18 wife and I along with two sons who have returned
19 to the farm operate a 130 cow dairy operation
20 just west of Kent.

21 As you drove to this hearing, you were
22 probably impressed with the scenic beauty that
23 this county has to offer with its many hills and
24 streams. Farmers understand that we need to

1 responsibly manage our farms to protect the
2 natural resources and beauty of this area. We
3 need to have livestock in Jo Daviess County. It
4 is a \$47 million industry in this county. We
5 also need livestock from an environmental
6 standpoint. We need to keep grass on our hills
7 and grow crops that control erosion that only
8 livestock can efficiently utilize.

9 Jo Daviess County leads the state in
10 number of beef cows produced. We are in the top
11 five for the number of dairy cows. We are the
12 No. 1 county for hay harvested. Our farm
13 incorporates alternating strips of row crops and
14 alfalfa that are planted on the contour to
15 prevent erosion. They are connected with glass
16 waterways that allow drainage while conserving
17 the soil. If we didn't have the dairy, we
18 couldn't utilize the hay.

19 As President of the Jo Daviess County
20 Farm Bureau, I am proud of the ingenuity of
21 livestock producers in this county. Many are
22 several generation farmers that have made a
23 significant investment in protecting our
24 environment and our resources. They know the

1 importance of these resources to make a living
2 and want to pass them on to the next
3 generations.

4 We realize that the Pollution Control
5 Board has been assigned the task of reviewing
6 the rules and regulations under which we must
7 operate. All we ask is three things.

8 Common sense; rules and regulations
9 that actually include language that protects the
10 environment while not unnecessarily burdening
11 the producer. Consistent; rules and regulations
12 that are the same no matter what governmental
13 agency they come from. It isn't fair to a
14 producer to make all the effort to be in
15 compliance with one governmental agency only to
16 be out of compliance with another. This
17 includes the Illinois Department of Agriculture,
18 the Illinois EPA, the USEPA and the NRCS.

19 Cost-effective; rules and regulations
20 are not so burdensome that producers cannot make
21 a living raising livestock. It serves no
22 purpose to have rules and regulations on paper
23 if there are no producers left to regulate. We
24 want to continue providing the products that

1 nourish this nation. Comments that were made
2 this morning referred to a livestock facility
3 that was never allowed to finish construction
4 and never had an animal on the premise.

5 I hope you have the opportunity after
6 the hearings are over to drive through the
7 countryside on some of the back roads and see
8 first-hand the efforts that our producers do in
9 keeping Joe Daviess County the scenic and
10 environmentally friendly county that it is.
11 Thank you.

12 HEARING OFFICER FOX: Mr. Lawfer, thank you
13 for your comment. We are ready for Mr. Thonan
14 (phonetic) if he is --

15 MR. THONAN: I will concede my time because
16 of repetition.

17 HEARING OFFICER FOX: Very good, sir. Thank
18 you very much. Mr. Duncan is next on our list.

19 Sir, please go ahead.

20 MR. DUNCAN: Hi. My name is Brian Duncan.
21 My wife and I operate a diversified grain and
22 livestock farm near Polo. I appreciate the
23 opportunity to speak to you today. I will try
24 to keep my comments brief.

1 A lot has changed on our farm over the
2 years. I am the third generation. My
3 grandfather purchased the farm. We raise a lot
4 of hogs that used to be in outside lots. Now
5 they are all in protective housing. Manure is a
6 valuable nutrient to us. It amounts to well
7 over \$100 an acre in cost benefit for our
8 cropping operations.

9 We used to haul manure with a box
10 spreader. Now we apply it with tankers equipped
11 with GPS technology, applying only with a flow
12 meter what the crop takes off. So the
13 technology has been of great benefit to us. My
14 wife and I live there. We have four kids. We
15 care more about the water than anybody, and our
16 message to you today is we want to stay there.

17 Staying on that farm is going to mean
18 livestock. I have four children. I believe
19 three of them will be part of the farm. I
20 actually have a daughter who wants to be part of
21 the dairy industry. I raise 50,000 hogs a year
22 and I've got a daughter that wants to milk cows.
23 Go figure.

24 Livestock is going to be important to

1 us as we go forward, and so my message to you
2 today is going to echo what Mr. Lawfer said. No
3 one here wants dirty water, dirty air, but those
4 of us who farm need a regulatory environment
5 that we know how to navigate. It needs to be
6 consistent. It needs to parallel rules that are
7 already on the books. I can't weed through and
8 wade through three or four different levels of
9 regulation. So we need to be consistent with
10 this, and it needs to be something that the
11 costs and benefits are analyzed.

12 You can lay layers of regulation upon
13 layers of registration, and if they don't
14 benefit the environment, all they do is serve as
15 layers of discouragement. We want to continue
16 to invest in the livestock industry. We want to
17 continue to grow our farm, and what we are
18 asking you is as you put these rules together,
19 keep our family in mind. We want to stay here,
20 and we want to be part of agriculture,
21 specifically animal agriculture for generations
22 to come.

23 HEARING OFFICER FOX: Thank you. Mr. Duncan,
24 thank you for your comments.

1 Mr. Ohloff, we are ready for you to
2 step forward, please.

3 MR. OHLOFF: Thank you. I will make this
4 quick also because of duplication. My name is
5 Matt Ohloff. I am a regional organizer with
6 Food and Water Watch. Food and Water Watch is a
7 national consumer advocacy organization. We
8 have worked to protect our food and water
9 resources. We have over 20,000 supporters in
10 Illinois. Not only does Food and Water Watch
11 organize all over the country on these issues,
12 our research has detailed the adverse impacts of
13 large CAFOs on the environment and local
14 economies.

15 We did a report in 2010, called
16 "Factory Farm Nation," which details
17 environmental impacts from factory farms across
18 the country. We also did this report a couple
19 weeks ago, "The Economic Cost of Food
20 Monopolies."

21 So quickly I will address the economic
22 arguments that have been raised. This report,
23 "The Economic Cost of Food Monopolies" has five
24 case studies, one of which is in Iowa, which

1 details the consolidation in the hog industry.
2 In Iowa, 1982, we had 23 million hogs. We now
3 have 47 million hogs. With the overall economic
4 productivity of the hogs, the price of the hog
5 market overall has declined by 12 percent. So
6 we have twice as many hogs and 12 percent less
7 in total revenue.

8 Counties that have more hogs, those --
9 the local economies there have declined, are 12
10 percent less -- the growth is 12 percent less
11 than the rest of the state. So the economic
12 argument of large CAFOs providing economic
13 growth to local economies is essentially false,
14 and we have tracked that in this research.

15 Of course, farmers are not to blame for
16 that. This has a lot to do with the
17 consolidation in agriculture, but we just want
18 to address that point, and that these
19 regulations, the proposed regulations, would
20 help level the playing field between small and
21 medium sized independent family farmers and
22 large producers. So we know very well the
23 environmental impacts, and we need to realize
24 the economic impacts and the benefit of small

1 and medium sized independent livestock farmers.
2 And these environmental regulations would help
3 level the playing field between independent
4 family farmers and large CAFO operators.

5 We propose that these standards should
6 include basic reporting by all large CAFOs in
7 the state to the EPA so the Agency can properly
8 account for them and ensure their operations are
9 protective of our waters, should include basic
10 reporting of nutrient management plans, should
11 require that all large CAFOs comply with the
12 same land application standards as the Clean
13 Water Act imposes on CAFOs with NPDES permits,
14 that it requires adequate setbacks and
15 separation distances from surface waters, wells
16 and sensitive aquifer and karst areas, and also
17 because of the likelihood -- a lot of these
18 things have been mentioned.

19 Because of the likelihood of manure
20 runoff during snow and ice melts, prohibition --
21 prohibit application of manure from large CAFOs
22 on frozen and snow covered ground unless an
23 emergency situation exists and prior approval
24 from the Agency is granted. If these

1 requirements are enacted in addition to the
2 standards set forth in Illinois EPA's proposed
3 regulations, Illinois will be one step closer to
4 ensuring proper regulation of an industry that
5 poses risks to our water resources.

6 And again, it would also be of benefit
7 to the local economies and to livestock
8 producers generally. Thank you.

9 HEARING OFFICER FOX: Thank you Mr. Ohloff.

10 As I mentioned as we began the
11 comments, I had picked up this list at which you
12 could sign in to offer a comment. I think we do
13 have one person who arrived after the hearing
14 began. Ma'am, may I get your name, please, to
15 add to this list? And we will have you step
16 forward and do that right now.

17 MS. WERNER: Lynn Werner.

18 HEARING OFFICER FOX: I'm sorry?

19 MS. WERNER: L-Y-N-N, W-E-R-N-E-R, and I was
20 going to print it and my printer wouldn't work.
21 That just goes to show that sometimes things
22 don't work as you plan.

23 My name is Lynn Werner. I live in
24 rural Galena. My parents were raised in rural

1 Iowa and Nebraska. I went to high school in
2 Freeport, which is the next county, where I ice
3 skated on Yellow Creek, where Future Farmers of
4 America was the most active club in our school.
5 That was the 1950's. I am turning 71. My
6 father was career military until he retired in
7 rural northwest Illinois. The landscape of
8 family farms is one I can remember.

9 After a long, full life I returned to
10 northwest Illinois a few years ago to raise
11 organic produce, to live in amazement at the
12 pristine beauty of our Driftless area. To say
13 again and again, here I am whirling through
14 space on this most exquisite of planets, our
15 earth. How blessed I am.

16 In each season I walk to the stream on
17 my property and I think about my life, my water
18 bottle filled with the clean water from my well
19 which comes from the abundant aquifers of our
20 county. How precious our clean and abundant
21 water.

22 Listening to the quiet movement of the
23 stream, I remember the eight years I spent as a
24 teacher and filmmaker working with poor rural

1 communities in South America. One day when I
2 was filming, I saw a frail woman walking with
3 her children down a country road. She told me
4 she was going to get water. I imagined a
5 bucolic stream surrounded by green. I asked if
6 I could film her.

7 We dipped under a fence onto a rich
8 landowner's property. I filmed as she pulled
9 aside one boulder, then another until she got
10 down to a clay pipe. Part of the pipe had been
11 evenly broken and she pulled it off. In that
12 deep hole she dipped her cup again and again to
13 fill a bucket with someone else's clean water.
14 How precious our water.

15 I remember the films I still have of
16 children with skin lesions from play in the
17 rivers in the Amazon-like jungles, waters which
18 had at one time been clean, but now received the
19 effluence of mining, sewage and the newly
20 introduced factory farms owned and run by
21 outsiders.

22 How precious our water. How precious
23 our right to have hearings such as today's.
24 I sit by my stream in Jo Daviess County and

1 remember returning to the pristine areas in the
2 northwestern U.S. where I had traveled as a
3 child, surprised to discover that the air was
4 now heavy with the stench of factory farms. I
5 searched the landscape for the small towns which
6 had once dotted those hills but they were gone.
7 I learned that property values plummeted as the
8 homes became uninhabitable for families. The
9 promises of economic growth from CAFOs dashed as
10 outsiders took over what had been in families
11 for generations, caring about their bottom line
12 more than the preservation of clean water and
13 air.

14 Yeah, a man with tired eyes told me in
15 a small café. Economic growth for the guys that
16 come in to build the CAFO; we had such promises
17 to sell our hay. We were promised an economic
18 boom. Instead, the value of our hay goes down,
19 and my children can't play outside much of the
20 day because of the contamination of the air.
21 First one CAFO came, then another. They didn't
22 tell us that.

23 I sit by the streams on my land in Jo
24 Daviess County. Cattle peacefully graze in the

1 next pasture. I still trust the stream as a
2 good place to look for fossils, to sail leaf
3 boats. I show my grandson the rocky stream
4 beds, and I tell him about natural aquifers, how
5 important it is to protect water. He learns a
6 new word, "karst." He likes big words.

7 Regulations are hard for us all. We
8 all wish we didn't need them. They can feel
9 cumbersome. We sometimes want to blame them for
10 the breakdown of our small farms. And yet we
11 see some new movement afoot. Farms with cattle
12 set out to pasture, while still managing to
13 protect our land and water. The gradual
14 elimination, not expansion of CAFOs, for we know
15 they end up destroying communities. We know as
16 fossil fuels become more and more costly and
17 unavailable, and as large corporations control
18 our seeds and insecticides, raising costs
19 because they can, the little guy seems to be
20 squeezed out. It is all so complex, and we feel
21 overwhelmed.

22 I am not a farmer. I do know, however,
23 how precious the water of Jo Daviess County is.
24 I am thankful for the regulations for CAFOs. I

1 am thankful that the regulations for CAFOs will
2 be stringent, and that the testing will be done
3 not after the pollution has taken place, but
4 that the regulations will prevent such
5 contamination. Our water will be kept clean.
6 This afternoon I will sit by my stream. I will
7 breathe deeply and listen. I will take a sip of
8 my well water and want to protect just this.
9 How precious our water. Thanks.

10 HEARING OFFICER FOX: Ms. Werner, thank you
11 for your comment, and just for the record,
12 before we move on to the testimony, is there
13 anyone else who has not done so that wishes to
14 offer a public comment today? Neither seeing
15 nor hearing any indication that there is, I
16 think we have come to the point where we can
17 turn to Ms. James' pre-filed testimony.

18 MS. DEXTER: I believe Ms. James has a
19 summary she would like to present first.

20 HEARING OFFICER FOX: Why don't we have the
21 court reporter swear her in, and if you have a
22 summary, Ms. James, you can proceed right to
23 that.

24

1 (Whereupon, the witness was duly
2 sworn.)

3 DR. JAMES: Thank you to the Board, to the
4 Agricultural Coalition, to the IEPA and to the
5 rest of the audience for this opportunity to
6 present supplemental testimony on behalf of the
7 Environmental Groups.

8 My name is Dr. Stacy James, and I am a
9 Water Resources Scientist at Prairie Rivers
10 Network, Illinois' statewide river conservation
11 organization and the state affiliate of the
12 National Wildlife Federation.

13 My work focuses on reducing pollution
14 from agricultural lands and concentrated animal
15 feeding operations through the adoption of
16 protective policies and conservation practices.
17 I was an active member in IEPA's CAFO rulemaking
18 stakeholder workgroup that formed in 2009, and I
19 am very familiar with not only the IEPA
20 regulations, but also the Livestock Management
21 Facilities Act or LMFA.

22 Under the LMFA only -- only those
23 livestock operations with 1,000 or more animal
24 units must prepare and implement a waste

1 management plan. These plans must include
2 certain land application technical standards.
3 In my previous testimony, I discussed some of
4 the ways that the LMFA's technical standards are
5 less protective of water quality than what IEPA
6 has put forth in their proposed rule.

7 The Agricultural Coalition has asked
8 that unpermitted large CAFOs following LMFA's
9 waste management plans qualify for the
10 agricultural storm water exemption.

11 The Environmental Groups are opposed to
12 this, and therefore I thought it would be
13 helpful if I more thoroughly compared in table
14 format the land application technical standards
15 in the LMFA to the technical standards for
16 unpermitted large CAFOs proposed by IEPA as I
17 understand them to be.

18 However, I want to point out that the
19 proposed rule is unclear as to what technical
20 standards are required of unpermitted large
21 CAFOs. In particular, Section 502.510(b)(11)
22 needs to be clarified so that it's easily
23 understood what is meant by quote, "Livestock
24 waste shall not be applied within the distance

1 from residences provided in Section 502.645(a)
2 and within the areas prohibited from land
3 application by this part."

4 The table I populated is presented as
5 Table 1 in my supplemental testimony and
6 provides further evidence that LMFA waste
7 management plans fall short of equaling what
8 IEPA has proposed for unpermitted large CAFOs.
9 Unfortunately, what IEPA has proposed for
10 unpermitted large CAFOs in turn fall short of
11 what IEPA has proposed for permitted CAFOs and
12 what is needed to protect Illinois' water.

13 In order for precipitation related land
14 application discharges from livestock waste to
15 be considered agricultural storm water
16 discharges, unpermitted large CAFOs should be
17 subject to the same land application technical
18 standards as permitted CAFOs. At the end of my
19 testimony I also addressed the question posed by
20 the Board at the DeKalb hearing. The
21 Environmental Groups have requested that Agency
22 approval be obtained prior to surface
23 application of livestock waste on frozen, snow
24 covered or ice covered ground. The Board asked

1 whether other states require CAFOs to obtain
2 Agency permission, and we found that Ohio and
3 Wisconsin are among several states that have
4 this requirement. This concludes the summary of
5 my testimony.

6 HEARING OFFICER FOX: Dr. James, thank you
7 for that summary. If you are ready, we can turn
8 to questions that the other participants may
9 have on the basis of it.

10 Does either the Agency or the
11 Agricultural Coalition wish to pose any
12 questions?

13 MS. MANNING: I have a couple of questions.
14 I will go first. Did you guys want to?

15 MS. OLSON: Go ahead.

16 STACY JAMES Ph.D.,
17 having been first duly sworn, was examined and
18 testified as follows:

19 DIRECT EXAMINATION

20 BY MS. MANNING:

21 Q. I'll just start with some general
22 questions and maybe have some follow-up after
23 the Agency asks questions as well.

24 Ms. James, thank you for the

1 comparison, actually, between the Livestock
2 Management Facilities Act and the -- with the
3 waste management plans. I think it was rather
4 helpful. You would agree, would you not, that
5 actually -- and I think you say in your
6 testimony that there are some provisions of the
7 Livestock Management Facilities Act that are
8 actually stricter than certain provisions in the
9 proposed rules?

10 A. For unpermitted large CAFOs, yes.

11 Q. And for CAFOs -- and unpermitted large
12 CAFOs are subject to the Livestock Management
13 Facilities Act?

14 A. Yes.

15 Q. And you would agree, would you not,
16 that -- that one who discharges -- a producer
17 who discharges under the Livestock Management
18 Facilities Act and has been accused of
19 discharging because there is evidence of a
20 pollutant entering a water of the United States
21 will be enforced against, and there is no
22 protection under the Livestock Management
23 Facilities Act for him to be enforced against?
24 In other words, the Livestock Management

1 Facilities Act does not provide any protection
2 against pollution? Someone who pollutes who is
3 following the Livestock Management Facilities
4 Act is nonetheless subject to enforcement?

5 A. If you pollute you are subject to
6 enforcement.

7 Q. Right.

8 A. If you are caught.

9 Q. And so all of those complaints that you
10 put into evidence are evidence of the state
11 going after those individuals, those producers,
12 who have not followed the provisions of the
13 Livestock Management Facilities Act adequately
14 and/or have not -- have not managed their farms,
15 their production areas, sufficiently to contain
16 any pollution?

17 A. I don't think I want to make a blanket
18 statement on all those complaints across the
19 board, but certainly there were discharges in
20 all those cases.

21 Q. And that's the reason for the
22 complaint?

23 A. Yes.

24 Q. Okay. So they didn't get any

1 protection for following the Livestock
2 Management Facilities Act as a result of that is
3 my point? In other words, the state is free to
4 charge someone with a violation of the Livestock
5 Management Facilities Act under the
6 environmental protection and through the
7 Environmental Protection Act provisions?

8 A. If you are asking me a question, can
9 you state that again?

10 Q. The -- a producer who follows the
11 Livestock Management Facilities Act provisions,
12 but nonetheless has a discharge is still subject
13 to enforcement?

14 A. So, of course, IEPA --

15 Q. The question was just a yes or no
16 answer one actually.

17 A. I don't want to answer it that way.
18 Basically, if you look at the Livestock
19 Management Facilities Act at the end of Section
20 20 there is -- so in Section 20 of the Livestock
21 Management Facilities Act it discusses who has
22 to have a waste management plan, and it
23 discusses the technical standards that have to
24 be in that plan, and then at the end of Section

1 20 in G it talks about, you know, people who are
2 required to prepare and maintain waste
3 management plans and who fail to do so shall be
4 issued a warning letter by the Department for
5 the first violation and shall be given 30
6 working days to prepare a waste management plan.

7 And then it goes on -- really right
8 here in the LMFA it really talks about failure
9 to prepare and maintain a waste management plan.
10 Now, if we were to turn to --

11 Q. But that wasn't my question.

12 A. Well --

13 Q. Clearly, there are penalties for not
14 doing what you are supposed to do under the
15 Livestock Management Facilities Act?

16 A. For preparing and maintaining a plan,
17 yes.

18 Q. But there is no protection against a
19 discharge. By following Livestock Management
20 Facilities Act plans, someone who pollutes the
21 waters of the United States is nonetheless
22 subject to enforcement under the enforcement
23 provisions of the Environmental Protection Act;
24 is that correct?

1 MS. DEXTER: Are you trying to ask her if the
2 LMFA provides a permit shield or essentially a
3 permit shield against --

4 MS. MANNING: I am asking her -- I am asking
5 -- yes. Not a permit shield, but --

6 MS. DEXTER: Right.

7 BY MS. MANNING:

8 Q. It does not. I am asking her -- it's a
9 real direct question. If someone discharges to
10 the waters of the United States, and says, oh,
11 but I followed all the provisions of the
12 Livestock Management Facilities Act, but
13 nonetheless there was a discharge, there is
14 pollution that has hit a water of the United
15 States and can be traced to that producer, he
16 can still be charged with a violation of the
17 Environmental Protection Act because he has
18 polluted the water of the United States; is that
19 correct?

20 A. If it's not an exempt agricultural
21 storm water discharge.

22 Q. Thank you. And you talk about 1,000
23 animal units, and I know we kind of throw around
24 the threshold, but could you explain as well, a

1 thousand -- the Livestock Management Facilities
2 Act uses animal units, yet the federal derived
3 rules uses sort of a different threshold.

4 So could you explain what a thousand
5 animal units really means in the context of the
6 various animal types?

7 A. Well, I think there was some discussion
8 of this in Urbana. So I think this topic has
9 already been covered, but basically it was
10 admitted that in some cases there are
11 discrepancies between a thousand animal units
12 and what IEPA -- or sorry -- what USEPA defines
13 as a large CAFO.

14 I didn't bring with me the nice table
15 that IDOA has put together that outlines how
16 many hogs or cows or cattle are a thousand
17 animal units. There is a lot of similarities,
18 but there is a few differences.

19 Q. And I also wanted -- you refer to part
20 of your work, and I am just trying to
21 understand. You evaluate construction
22 applications for new CAFOs. And I understand
23 your degrees to be in biology and science; am I
24 correct?

1 A. Yes.

2 Q. You don't have any engineering or
3 construction degrees?

4 A. Correct.

5 Q. Okay. And the attachment that you put
6 on to your original testimony, just to put those
7 in context as well. They were -- that you had
8 various attachments, not only the complaints I
9 know that we have talked about previously and
10 today, but also the -- all of the studies that
11 you put into evidence.

12 Just to clarify for the record, you
13 didn't author any of those studies, right?

14 A. You are correct.

15 Q. So you are offering them as scientific
16 literature for the Board to look at basically?

17 A. Yes.

18 MS. MANNING: Thank you. That's all I have
19 right now. I might have more after the Agency
20 asks questions.

21 HEARING OFFICER FOX: Very good. Thank you,
22 Ms. Manning.

23 Ms. Williams or Ms. Olson, did you have
24 any questions on the basis of Dr. James'

1 testimony today?

2 CROSS-EXAMINATION

3 BY MS. WILLIAMS:

4 Q. Maybe just one or two.

5 Dr. James, I thought I heard you say in
6 your summary that you found several states that
7 required permission before -- prior to winter
8 application. Did I misunderstand the summary?

9 A. Yes. I said Ohio and Wisconsin are
10 among several states.

11 Q. Are there any others that you didn't
12 mention in your written testimony besides Ohio
13 and Wisconsin?

14 A. Yes, there are, and we -- as I
15 mentioned, at the end of my testimony, we would
16 like to go into more detail on that in our final
17 comments.

18 Q. With regard to Ohio and Wisconsin, I
19 mean, would you agree that Wisconsin does not
20 require permission of the agency if there is an
21 emergency that would impede that?

22 A. It does say in my testimony on the last
23 page, Item 2, Wisconsin, that the Wisconsin
24 Administrative Code says, The permittee has

1 notified the department verbally prior to the
2 emergency application. Unless necessitated by
3 imminent impacts to the environment or human or
4 animal health, the permittee may not apply
5 manure to a field on an emergency basis until
6 the department has verbally approved the
7 application.

8 Q. So do you understand what -- how
9 Wisconsin defines an emergency in its
10 regulations? Do you know how they define the
11 difference between an emergency in which you are
12 allowed to apply in the winter and an emergency
13 in which you are allowed to apply in the winter
14 without agency permission?

15 A. Are you referring to the fact that in
16 Wisconsin there are certain conditions that are
17 considered an emergency?

18 Q. I am referring to the provision that in
19 Wisconsin winter application should be done on
20 an emergency basis.

21 A. Right. So, for example, in Wisconsin's
22 liquid manure winter restrictions, they define
23 conditions under which there is an emergency and
24 then -- and then that was the basis for --

1 Q. And then so they have these conditions
2 that they consider an emergency, but there is
3 some heightened level of emergency then, I
4 guess, in which you can land apply without
5 waiting for agency approval; is that your
6 understanding?

7 A. It does appear that when there is
8 imminent impacts possible that you can forego
9 that permission.

10 Q. Do you know -- either for Ohio or
11 Wisconsin, do you have an understanding if there
12 is a standard in the regulations that the agency
13 uses to make a formal approval decision that
14 land applications can be conducted?

15 A. I'm not sure what you mean by that.

16 Q. I was trying to help the Board
17 understand and understand for myself if we were
18 to require the agency to give permission, what
19 standards would that decision be based on? So
20 if there is help from the other regulations, and
21 what set of standards is the agency decision
22 going to be based on to grant permission?

23 A. I think our intent for our proposal was
24 that basically the Agency would be sure that the

1 winter application would be in compliance with
2 Illinois regulations. So it would be a rundown
3 to make sure that Illinois' regulations are
4 being complied with prior to winter application.

5 Q. And do you think that would require a
6 site visit?

7 A. I think it would depend in part on
8 whether or not this facility had already
9 submitted a nutrient management plan to the IEPA
10 and if that -- you know, if the IEPA had
11 reviewed the winter application plan, which is
12 supposed to be part of the nutrient management
13 plan and given it the okay and issued the
14 permit.

15 In the case of the unpermitted large
16 CAFOs that are also required to have a nutrient
17 management -- sorry -- a winter management plan,
18 in those cases, as proposed, unpermitted large
19 CAFOs will not be submitting their winter plans
20 to IEPA for review and approval, so in which
21 case at least seeing those plans I think would
22 be necessary.

23 Q. And reviewing the plan, I would assume?

24 A. Right.

1 Q. Not just seeing it, reviewing it?

2 A. Yes.

3 Q. And making sure that it complies with
4 the regulations.

5 Do you know if the other states that
6 you have looked into so far have a similar
7 process with winter application plans that get
8 submitted?

9 A. I don't know if they have winter
10 application plans, but they have nutrient
11 management plans that must be submitted, and for
12 example, the case in Wisconsin, they are more
13 stringent than Illinois in that they require all
14 large CAFOs regardless of whether they discharge
15 or not to actually be permittees, whereas in
16 Illinois we require only those that discharge to
17 have a permit.

18 Q. And would you agree that some of the
19 requirements in the Agency's proposal for winter
20 applications are more stringent than some of the
21 requirements in Ohio and Wisconsin for
22 conditions when you can apply or the setbacks
23 that must be followed?

24 A. I have not done a thorough evaluation

1 of that, because we were focusing on this one
2 component of the rule.

3 Q. So, for example, do you know if Ohio
4 allows winter application on slopes greater than
5 5 percent?

6 A. Whether --

7 Q. Whether Ohio would allow that? If you
8 don't know, it's fine.

9 A. I would have to look at what I have
10 before me.

11 Q. But you would agree that there is a
12 big -- there is a component to winter. There is
13 a lot of pieces to it, and that in order to
14 compare states to each other there is a lot of
15 factors that would be involved?

16 A. Absolutely.

17 MS. WILLIAMS: I don't think I have any other
18 questions.

19 HEARING OFFICER FOX: Ms. Manning, did you
20 have any follow-ups that you wish to pose?

21 RE-DIRECT EXAMINATION

22 BY MS. MANNING:

23 Q. I think I do. Would you agree, Ms.
24 James, that the agricultural storm water

1 exemption is an exemption under the Clean Water
2 Act?

3 A. Yes.

4 Q. Okay. And the USEPA allows the
5 agriculture storm water exemption to be utilized
6 as a defense if certain best practices are made
7 and the USEPA in its rules sets forward sort of
8 a standard set of those best practices, would
9 you agree with that, in terms of the proposed
10 federal rules?

11 A. They allow states to come up with
12 technical standards. There are some minimum
13 thresholds that USEPA has put forward, but
14 basically Illinois EPA was charged with putting
15 together a stakeholder committee that would
16 provide input on what other technical standards
17 we think are appropriate for Illinois.

18 Q. So you would agree then it's the
19 purpose of this rulemaking to determine those
20 best technical standards in Illinois?

21 A. Yes.

22 Q. And that the Livestock Management
23 Facilities Act is already a law in Illinois,
24 which sets forward some of those standards. You

1 would agree with that as well, correct?

2 A. Some of them. But, for example, in my
3 table, I discussed the fact that the LMFA
4 doesn't require minimum land application
5 setbacks from conduits to surface waters, and
6 conduits to surface waters are specifically
7 mentioned in the USEPA rules.

8 Q. Yeah. I think the difference in the
9 two of them kind of speak together. Some are
10 more general. Some are more specific in various
11 degrees and a comparison of both of them, but
12 the intention of the Livestock Management
13 Facilities Act, I don't think you would
14 disagree, is to have provided even prior to the
15 federal rules coming forward best management
16 practices for producers to use in Illinois, such
17 that they would not create a discharge. Would
18 you agree with that?

19 A. Well, I am looking at the policy
20 statement in the Livestock Management Facilities
21 Act, and it says, Therefore, it is a policy of
22 the State of Illinois to maintain an
23 economically viable livestock industry in the
24 State of Illinois while protecting the

1 environment for the benefit of both the
2 livestock producers and the people who live in
3 the vicinity of a livestock production --

4 Q. So the legislature believes that it
5 effectuated an appropriate balance in creating
6 the Livestock Management Facilities Act between
7 the economics of agriculture and the protection
8 of the environment?

9 A. The protection of the environment, yes.

10 MS. MANNING: Thank you. That's all I have.

11 HEARING OFFICER FOX: Thank you, Ms. Manning.

12 Anything on the part of the Agency?

13 CROSS-EXAMINATION

14 BY MS. OLSON:

15 Q. I have just one follow-up.

16 Do you believe that the LMFA should
17 form the basis of when an unpermitted large CAFO
18 can claim the ag storm water exemption?

19 A. No.

20 Q. Do you believe that the LMFA should
21 form the basis of when an unpermitted large CAFO
22 does or does not need a permit?

23 A. I guess I don't understand your
24 question, because the LMFA is more about

1 construction standards and land application
2 standards.

3 Q. So do you believe that the land
4 application standards contained in LMFA would be
5 sufficient for when an unpermitted large CAFO
6 needs to get a permit? In other words, when
7 would their land application practices --

8 A. Well, I think my main thought on your
9 question is that there have been facilities that
10 have been approved under the Livestock
11 Management Facilities Act. They have not
12 applied for an NPDES permit, and they have
13 discharged. So I think history has proven that
14 you can build your facility in accordance with
15 the Livestock Management Facilities Act and have
16 a discharge.

17 So I don't think the LMFA should be the
18 basis for determining whether or not you need a
19 permit. I think -- I would assume whether or
20 not you need a permit should be based on the
21 rule in which we are discussing today.

22 MS. OLSON: That's all I have.

23 FURTHER RE-DIRECT

24 BY MS. MANNING:

1 Q. I have a follow-up to that point.
2 Maybe I am confused, but what I asked you
3 earlier is that a producer who has a discharge
4 and pollution is entering waters of the United
5 States, that the Livestock Management Facilities
6 Act is not in defense to that discharge? In
7 other words, he could have had his facility
8 approved by the Department of Agriculture, but
9 he didn't operate it sufficiently or carefully
10 enough or within the letter of the law under the
11 Livestock Management Facilities Act, and if he
12 has a discharge, that's not a pass on
13 enforcement?

14 MS. KNOWLES: I don't really understand why
15 the question is being asked again. It's been
16 answered.

17 MS. MANNING: I thought I heard her answer it
18 differently with the Agency.

19 MS. KNOWLES: The question posed was
20 different. I object.

21 HEARING OFFICER FOX: Perhaps you could
22 restate the question.

23 BY MS. MANNING:

24 Q. A producer who is certified has his

1 facility design certified with the Livestock
2 Management Facilities Act, and you testified
3 that history has shown that someone can have
4 their facility approved by the Department of Ag,
5 but yet there is still a discharge.

6 The question is, if the producer has a
7 discharge, the Livestock Management Facilities
8 Act does not protect him from enforcement under
9 the Environmental Protection Act, correct? Even
10 if the design was adequate --

11 MS. DEXTER: I think this is the same
12 question again.

13 THE WITNESS: I mean, it's correct. I
14 think our position --

15 BY MS. MANNING:

16 Q. That's fine. It's correct.

17 A. Am I allowed to continue and respond?

18 Q. Go ahead. I asked the question. Go
19 ahead.

20 A. Our position is like what some of the
21 citizens this morning presented, is that we are
22 not interested in a "catch me if you can"
23 system. We are interested in strong regulations
24 that prevent pollution from happening to begin

1 with, and my belief is that what IEPA has
2 proposed for a permitted CAFO is going to do a
3 far better job than what LMFA contains.

4 HEARING OFFICER FOX: Anything further, Ms.
5 Manning?

6 MS. MANNING: No, nothing further.

7 BOARD MEMBER ZALEWSKI: Just one question,
8 Dr. James. Forgive me if we have this in the
9 record, but do we have an exhaustive list of all
10 the states that require permits by all CAFOs?

11 THE WITNESS: We do not.

12 BOARD MEMBER ZALEWSKI: Would you be able to
13 submit that?

14 THE WITNESS: Yes.

15 MS. DEXTER: At least the ones we know. We
16 hope to have that in our filed comments.

17 BOARD MEMBER ZALEWSKI: Okay. Thank you.

18 THE WITNESS: I know Wisconsin and Minnesota
19 are among some.

20 MS. DEXTER: Vermont and Maine are others
21 that I found.

22 THE WITNESS: Permits, not permissions.

23 MS. DEXTER: I'm sorry.

24 THE WITNESS: So we will look into that.

1 BOARD MEMBER ZALEWSKI: Thank you.

2 HEARING OFFICER FOX: Any further questions
3 on the part of the Agriculture Coalition or of
4 the Agency? Ms. Olson, do I see you indicating
5 you have a follow-up?

6 FURTHER RECROSS-EXAMINATION

7 BY MS. OLSON:

8 Q. Just one second. It's just one
9 question. My previous question, Dr. James, was
10 about the LMFA and ag storm water exemption. So
11 I kind of want to build on that.

12 If the rules that the Board adopts were
13 to have the land application requirements based
14 on the LMFA to claim the agricultural storm
15 water exemption, can you tell us your opinion on
16 whether or not you believe that the Board rule,
17 if so adopted, would be more or less stringent
18 than the federal rule?

19 MS. KNOWLES: Can I ask you to clarify? You
20 said the Board's rule.

21 BY MS. OLSON:

22 Q. Right. So if the Board were to
23 adopt --

24 MS. KNOWLES: Your proposal?

1 BY MS. OLSON:

2 Q. No. I'm just saying the Board's rule.
3 Not our proposal. I am actually thinking about
4 the Agricultural Coalition's proposal, that the
5 ag storm water exemption would be tied to
6 meeting the requirements in the LMFA. So if the
7 Board were to proceed on that path, do you
8 believe that that rule as adopted by the Board
9 would be more or less stringent than the federal
10 rules?

11 THE WITNESS: I'm sorry. Is this for
12 unpermitted?

13 BY MS. OLSON:

14 Q. For unpermitted large CAFOs claiming
15 that --

16 A. Only? Not the permitted?

17 Q. Not the permitted.

18 A. This is a legal question that I have
19 not had enough time to discuss with my
20 attorneys. So I think there is some -- I think
21 in the federal rule there are some -- a few best
22 management practices that are laid out, and so
23 as I mentioned before, one of those best
24 management practices is conduits to surface

1 waters. I think we would need to answer your
2 question at a later time.

3 MS. OLSON: That's all I have.

4 HEARING OFFICER FOX: Very good. Ms.
5 Manning, anything further on the part of the
6 Agricultural Coalition?

7 MS. MANNING: No.

8 HEARING OFFICER FOX: I think we have a very
9 good sign that we have been -- we have been
10 underway for a while. That was very, very good
11 timing.

12 Here is what my intention would be. We
13 have exhausted all of the public comments, I
14 believe, that wish to be offered and Dr. James,
15 I believe, and I will certainly ask everyone to
16 concur that we have exhausted the questions both
17 on the part of the other participants and the
18 Board on the basis of your testimony. We have
19 two more witnesses left and one witnesses that
20 we can address, I think, very quickly, Ms.
21 Manning, as a procedural matter once we resume.

22 What I would like to do is this, take a
23 break for approximately 15 minutes to 12:20. We
24 have a number of people who have traveled some

1 distance, and I believe that they would like to
2 resume that travel earlier rather than later,
3 and to try to make as much progress as we can as
4 quickly as possible when we resume at 12:20
5 assessing a bit later where we stand exactly.

6 I will point out that in this building
7 we have down the hall to the left toward the
8 front entrance restrooms and a drinking
9 fountain. Around the corner to the left there
10 are at least a couple of vending machines that
11 have some drinks and food items in them so we
12 can make use of the break. But at this point
13 let's end for approximately 15 minutes and
14 resume at 12:20. Thank you.

15 (Whereupon, a short break was
16 taken.)

17 HEARING OFFICER FOX: All right. Let's
18 resume this hearing, the time of 12:20 having
19 come. When we broke at approximately noon, we
20 had concluded the supplemental testimony that
21 Dr. James had filed, and I believe we had
22 exhausted all of the questions on the basis of
23 it. So, Dr. James, we can certainly thank you
24 for your role in this hearing and for your time

1 in preparing for them.

2 Before we began the hearing, we agreed
3 that we would next turn to the witnesses who had
4 pre-filed testimony on behalf of Agricultural
5 Coalition. Those would be Dr. Goldsmith and Mr.
6 Trainor.

7 And Ms. Manning, I think we are ready
8 to turn to you to address those two gentlemen.

9 MS. MANNING: Thank you, Mr. Hearing Officer.
10 First of all, with regard to Dr. Goldsmith, I
11 apologize, but he had an inadvertent conflict
12 that he was not able to reconcile. Given the
13 timing of all of this, we were able to get his
14 testimony pre-filed, but -- we knew he had a
15 scheduling difficulty, but we had hoped that he
16 could resolve it, and he was not able to.

17 So we apologize for that. And what I
18 had proposed to do and had talked to the Hearing
19 Officer about is simply turning that into a
20 public comment, for the Board to receive Dr.
21 Goldsmith's pre-filed testimony as a public
22 comment. So with leave of the Board, we would
23 ask that you do that.

24 HEARING OFFICER FOX: Very well. Ms.

1 Manning, what I will do is produce that for the
2 Board's clerk where it will be docketed as a
3 public comment, and I will ask him to clarify
4 that it is in place of the pre-filed testimony
5 effectively that you had previously filed last
6 week.

7 MS. MANNING: And we brought extra hard
8 copies of his testimony and the reports.

9 HEARING OFFICER FOX: Very good. And those
10 are -- one copy of that is in my possession, and
11 I appreciate the additional copies that you
12 would provide us for the Board Members, and Ms.
13 Manning, I understand that this is identical to
14 the pre-filed testimony?

15 MS. MANNING: That's correct.

16 HEARING OFFICER FOX: Very good. And if the
17 record would reflect that the pre-filed
18 testimony was filed on Wednesday, the 7th, if
19 memory serves me correctly, and has been
20 accessible through the Board Clerk's Office
21 online since the date on which it was filed. So
22 it is precisely the same document that Ms.
23 Manning has submitted today as a public comment
24 on Dr. Goldsmith's behalf.

1 MS. MANNING: That is correct. And I do have
2 one more copy of a hardcopy if either of you
3 want it.

4 HEARING OFFICER FOX: I'm not seeing any
5 interest in that, Ms. Manning. There was not a
6 line. Ms. Manning, I think we have reached the
7 point where we can turn to Mr. Trainor.

8 MS. MANNING: Yeah, we will get serious.

9 HEARING OFFICER FOX: And if Mr. Trainor has
10 a brief summary or introduction that he needs to
11 offer.

12 MS. MANNING: He does.

13 HEARING OFFICER FOX: Mr. Trainor, please go
14 ahead.

15 (Whereupon, the witness was duly
16 sworn.)

17 MR. TRAINOR: My name is David Trainor. I
18 live in Madison, Wisconsin. I am a partner in a
19 company called NewFields, which is a science and
20 engineering company that deals with several
21 areas of investigation or remediation. I am a
22 registered professional engineer and a
23 professional geologist. I have over 32 years of
24 experience, and most of my area of expertise is

1 in the area subsurface investigation,
2 groundwater seepage, facility siting and design
3 and remediation.

4 I hold a bachelor's degree in civil
5 engineering and a bachelor's degree in geology
6 and a master's degree in environmental
7 engineering. I was actually contacted by the
8 Agricultural Coalition recently as a referral
9 because of my previous experience working as a
10 third-party expert witness on the Tradition
11 Homes -- I'm sorry -- Tradition Homes
12 administrative trial in Galena in 2009.

13 Because of that familiarity, I was
14 asked to take a look at previous testimony that
15 had been filed in this case, as well as review
16 the rule and provide some opinions on that. And
17 since much of the previous comments dealt with
18 the Tradition Dairy siting, and as it is in my
19 testimony, just to encapsulate what we did as
20 third-party reviewers, we took a look at a lot
21 of the data that had been generated from the
22 facility siting design, all the work that had
23 been done, evaluated conditions at the site,
24 took regional data, assembled all that

1 information and made the conclusion that the
2 facility would be designed and operated in being
3 environmentally protective. And as a result of
4 that, the judge made the ruling for the dairy.

5 One of the things that we were asked to
6 look at here was to take a look at the rule and
7 make a determination as to if it would be
8 protective and evaluate some of the testimony
9 that's been brought forth. We came to the
10 conclusion that these rules basically follow
11 what's been developed in other states. They
12 essentially say that land application has to be
13 regulated, and that we concluded that it would
14 be protective of any groundwater resources or
15 other sensitive areas as they are depicted in
16 the rule.

17 One of the things that I looked at in
18 the previous testimony and in some of the
19 recommendations that we saw was that there were
20 some fairly restrictive recommendations to
21 implement with this rule, and we took exception
22 to some of those. One of the things that you
23 have to remember about land application of
24 liquid manure is the affect of the nutrient

1 loading and the affect on groundwater.

2 Much of the concern that we have is
3 what will happen with the migration of those
4 contaminants to groundwater and then ultimately
5 surface water. With manure you have
6 contaminants that are predominantly inorganic;
7 namely, phosphates and nitrates, and organic
8 bacteria. When contaminants are released to the
9 subsurface environment, they have to follow
10 natural flow conditions in order to reach the
11 water table. The concern that people have
12 raised is that this -- in sensitive
13 environments, this flow will be rapid and then
14 it can quickly damage other water resources.

15 The rules are set up to use the
16 attenuation capacity of soils as is well
17 understood, as it has been the practice for
18 decades for land application of wastes.
19 Normally these wastes are applied -- if properly
20 applied provide nutrients to the soil, and they
21 are regenerated just as a plant regenerates in
22 the normal cycle.

23 In sensitive environments, what will
24 happen is there is a potential that especially

1 in karst environments there may be rapid
2 transmission of these contaminants through
3 fractured conditions through the soil and
4 through the fractured rock and reach groundwater
5 and surface water resources. That potential is
6 there, but if it's properly managed, it can be
7 properly handled.

8 We have to understand, too, when we
9 talk about protection of groundwater resources,
10 much of the comments that I have heard this
11 morning deal with discharges that have resulted
12 in surface water contamination. Much of that is
13 caused by runoff. When it comes to groundwater
14 contamination, there are very few -- and I'm not
15 saying there aren't any, but with these types of
16 contaminants for this type of application, most
17 groundwater is normally protected.

18 And that has to do with a couple of
19 things; namely, the environment of the
20 groundwater is a reducing environment. It is
21 oxygen starved, and that is, bacteria doesn't
22 survive in the groundwater environment.
23 Normally it dies off before it reaches surface
24 water through normal discharge of groundwater to

1 surface water.

2 Some of the recommendations that I saw
3 was that there should be a recommendation for a
4 50-foot separation for any land application
5 between the ground surface and fractured
6 bedrock. Personally, I have a problem with that
7 because that's very excessive, and that would
8 not only eliminate future land spreading area --
9 land spreading facilities, but it would
10 basically eliminate all land spreading
11 facilities in much of the Driftless zones in
12 southwest Wisconsin, northwestern Illinois,
13 eastern Minnesota and northeastern Iowa. We
14 have operated land spreading facilities in these
15 areas for decades, and by and large, most
16 groundwater resources have been largely
17 protected when properly implemented.

18 The other recommendations I saw had to
19 do with recommendations for setbacks from
20 surface water and from karst and other water
21 resources such as potable water wells. In
22 looking at some of those, those were comparable
23 to large refineries or sanitary landfills. And
24 we understand the potential contaminant sources

1 that those present. I offer that I would hazard
2 a guess or, I should say, note that a manure
3 stack or a manure source is not the same type of
4 potential contaminant source as a sanitary
5 landfill or a refinery.

6 So, in conclusion, I can just say that
7 I feel that many of these recommendations I
8 think are overly, overly conservative and would
9 result in actually the loss of economic
10 viability, simply because it would be too costly
11 to implement and manage the agriculture
12 resources.

13 MS. MANNING: Just if I could, as a
14 clarification, Mr. Trainor, by the
15 recommendations, you mean those proposed by the
16 environmental community --

17 THE WITNESS: That's correct.

18 MS. MANNING: And not those proposed by the
19 Environmental --

20 THE WITNESS: I should qualify that --

21 MS. MANNING: -- Protection Act?

22 THE WITNESS: The Agency's rules are
23 protective. I'm looking at the rules I've just
24 reviewed recently that are proposed as the

1 alternative recommendations.

2 HEARING OFFICER FOX: Very good. Mr.
3 Trainor, thank you for that summary and for
4 those opening remarks. If you are prepared, we
5 can open the floor to questions that either the
6 Environmental Groups or the Agency may have on
7 the basis of that testimony.

8 DAVID TRAINOR,
9 having been first duly sworn, was examined and
10 testified as follows:

11 DIRECT EXAMINATION

12 BY MS. WILLIAMS:

13 Q. Just a couple of quick questions, I
14 think. When you summarized your testimony, Mr.
15 Trainor, I believe you said that you were a
16 third-party reviewer?

17 A. That's correct.

18 Q. So does that mean you did not collect
19 the site specific data that you testified about?

20 A. No. I -- well, I should say this. I
21 evaluated the data. We were not part of the
22 design team. So we did not collect our own
23 samples.

24 Q. Do you have any experience that would

1 give you any knowledge as to about how much that
2 type of investigation would cost?

3 A. Well, the Livestock Management
4 Facilities Act is very specific on what's
5 required for siting facilities. That work was
6 implemented for the Traditions South Dairy.
7 What's been recommended as far as trying to
8 determine if -- for example, if karst features
9 are present in the area of a proposed facility,
10 would be frankly very prohibitive. I mean, you
11 are looking at hundreds of thousands of dollars
12 to do an investigation that would take months,
13 if not years to do.

14 Q. But you don't have any information
15 specifically on how much the cost was of the
16 project you worked on?

17 A. What was done or what was being
18 proposed?

19 Q. What was done.

20 A. I would imagine that the work that was
21 done for the designer probably in the area of
22 approaching a million dollar work load. I mean,
23 that was a large facility.

24 Q. Can you tell us, do you have any

1 experience on how much it costs to drill
2 borings? In the cost per boring, is it done
3 that way, cost per boring?

4 A. Well, it's usually a cost per foot. It
5 depends on the material. But usually what you
6 figure is if you put in a 20-foot boring, you
7 can assume depending on what you do with that
8 boring -- if you are going to collect samples to
9 do an analysis to install the well, you are
10 looking at 5 or \$6,000. If you are going to
11 talk about drilling a 100-foot boring into the
12 rock, you are looking at maybe three to four
13 times that amount.

14 Q. Let me just ask you to clarify one of
15 the statements. On Page 3 of your testimony,
16 similar I think when Ms. Manning asked you about
17 to make sure we are all clear on the record
18 about what you meant by "these recommendations,"
19 I think that's what -- a similar clarification
20 question I would like to ask.

21 "The statement on Page 3,
22 Investigations comparable to those described
23 above (and in the IEPA proposed rules) can
24 provided sufficient information to develop a

1 land application plan." So can you just be
2 clear, when you are talking about investigations
3 comparable to those described above, which
4 investigations are you talking about?

5 A. Specifically that deals with the
6 investigations required by the rules, okay. So,
7 for example, I used the cost of the Traditions
8 South Dairy, which was a large CAFO that had
9 very large manure lagoons. I gave you a number
10 that probably had approached several hundred
11 thousand dollars, a million dollars to
12 investigate. I mean, that's a number that would
13 be borne by the applicant. If we are talking
14 about smaller facilities, of course, it's going
15 to be a matter of scale with that. But I guess
16 I just gave you the -- what I am referring to
17 here is the regulations are already on the
18 books.

19 Q. There was a term in your testimony I
20 didn't really understand and this is just
21 curiosity, I guess, on my part, but could you
22 explain to the Board what a perched aquifer is
23 and what that means?

24 A. Sure. It's important to understand

1 what is meant by groundwater flow, and much of
2 the testimony and much of the work that's been
3 done in this case deals with saturated
4 conditions and the separation of water table.
5 Any geologic unit that is saturated can be
6 considered an aquifer.

7 Technically that's not necessarily
8 true, because oftentimes the word aquifer is
9 also applied to a potable water resource, but
10 here in Illinois, we have classifications, and
11 it does deal specifically with resource
12 groundwaters or non-resource groundwaters, and
13 any geologic unit that is saturated can be
14 considered a Class 1 or Class 2 or Class 4
15 groundwater.

16 If the saturated unit is separated by
17 an impermeable barrier to a lower unit and that
18 there is no hydraulic connection between that
19 upper unit and the lower unit, that's what's
20 considered a perched aquifer, because there is a
21 separation between that unit and a lower unit
22 that is basically an impermeable barrier.

23 BOARD MEMBER RAO: So the upper unit is the
24 perched aquifer?

1 THE WITNESS: Right. In my testimony what I
2 was talking about was we evaluated conditions at
3 the site that dealt with specifically how the
4 ponds were going to be designed and how they had
5 to deal with groundwater incursion in the area
6 where the ponds were going to be excavated.
7 Initially it was thought that this was what was
8 called a perched aquifer. This was actually
9 just a water table in the shallow unit above the
10 bedrock. But based on regional information we
11 evaluated -- again, we didn't collect samples.
12 When we were doing our third-party evaluation,
13 that perched unit was actually a reflexion of a
14 much larger aquifer over the region, which
15 actually was part of the potable aquifer that is
16 used by local wells. That was an important
17 conclusion we made in relationship to the design
18 of the ponds and what our conclusions were
19 regarding the facility itself.

20 So that's -- understand when I say
21 perched aquifer, it wasn't a perched aquifer
22 because the engineers thought, hey, we got this
23 problem. Let's de-water this. Let's get rid of
24 the water. They really weren't de-watering the

1 perched aquifer. They were actually lowering
2 the water table for the regional aquifer. It
3 just happened to be up in the overburden soils
4 above the bedrock.

5 MS. WILLIAMS: Thank you. That's all I have.

6 HEARING OFFICER FOX: Thank you, Ms.
7 Williams.

8 Ms. Dexter, you had a few questions it
9 appeared.

10 CROSS-EXAMINATION

11 BY MS. DEXTER:

12 Q. I just have a few questions.

13 You are a professional geologist, but
14 do you consider yourself an expert on karst?

15 A. Well, I have studied karst. I mean, I
16 don't make my living on karst, no.

17 Q. Are you a hydrogeologist?

18 A. Yes, I am.

19 Q. Are you a soil scientist?

20 A. No.

21 Q. Okay. Have you done any research
22 assessing the underground movement of land
23 applied livestock waste in karst areas?

24 A. Personal research, no.

1 Q. Did you analyze any well water quality
2 samples to support the conclusions you have
3 presented in your testimony?

4 A. I have looked at the previous data. I
5 have not looked at samples I have collected
6 myself, no. I looked up the data.

7 Q. You mentioned that the regulations
8 proposed by Environmental Groups would be too
9 costly. Have you done an assessment of the cost
10 of those proposed setbacks?

11 A. The setbacks. What I was sort of
12 bringing was this universe of the setback plus
13 the recommendations for bedrock separation and
14 determining karst conditions. Now, what would
15 happen obviously with the setbacks is you would
16 eliminate land for production. So that would be
17 an opportunity cost you would have to evaluate.
18 Did I do a cost analysis of that, no.

19 Q. You haven't done a cost analysis --

20 A. No, no.

21 Q. On any of the things that you were --

22 A. No.

23 Q. Okay. Your testimony references
24 litigation regarding the Traditions Dairy CAFO

1 for which you provided expert testimony where
2 you concluded based on your analysis of soil
3 boring data, quote, "That the proposed design
4 was protective of groundwater and surface water
5 recourses potentially affected by the proposed
6 facility."

7 Are you aware that in 2009 USEPA
8 initiated a series of Clean Water Act Section
9 308 information requests requiring Traditions to
10 provide information to allow USEPA to determine
11 whether the facility required an NPDES permit
12 for discharges via the karst aquifer?

13 A. Yes, I am.

14 Q. Are you aware that during and
15 subsequent to the litigation you were involved
16 in, Traditions received a series of violation
17 notices for discharges from the site from both
18 USEPA and IEPA?

19 A. Yes, I am.

20 Q. Are you aware that the Illinois
21 Attorney General brought an enforcement case
22 against Traditions for its unauthorized
23 discharges of water pollution?

24 A. Yes, I am.

1 Q. Are you aware that Traditions is now
2 abandoning the site as a result of these
3 enforcement actions?

4 A. I am aware they are abandoning the
5 site, but not necessarily because of those
6 enforcement actions.

7 Q. Do you know whether that was part of
8 the settlement agreement?

9 A. I do know -- I wasn't part of the
10 settlement agreement. So I can't speak to the
11 specifics. I do know that Traditions was
12 actually going to go ahead and do investigations
13 to -- as required by EPA before they decided to
14 make that -- before they decided to abandon the
15 site.

16 MS. DEXTER: That's all I have.

17 MS. MANNING: Before we go, I have a couple
18 of follow-up questions, if I might, toward that
19 line of questioning.

20 HEARING OFFICER FOX: Please go ahead, Ms.
21 Manning.

22 CROSS-EXAMINATION

23 BY MS. MANNING:

24 Q. The enforcement action that was filed

1 has nothing to do with livestock actually being
2 in the facility or the facility being used to
3 house livestock; is that correct?

4 A. That's correct.

5 Q. Because livestock never really entered
6 the facility, because the facility was never
7 operational; is that correct?

8 A. That's correct.

9 MS. MANNING: Thank you.

10 MS. KNOWLES: I have one, please.

11 HEARING OFFICER FOX: Please go ahead, Ms.
12 Knowles.

13 CROSS-EXAMINATION

14 BY MS. KNOWLES:

15 Q. In your written testimony and today you
16 stated that what IEPA is proposing is comparable
17 to other states, and you used Wisconsin as an
18 example; is that correct?

19 A. That's correct.

20 Q. And I can gather from your written
21 testimony that you believe the Wisconsin
22 standards with regard to land application on
23 sensitive geologic areas reasonable?

24 A. Yes.

1 Q. Is that correct? And are you aware
2 that that IEPA proposal prohibits application of
3 livestock waste on land with less than ten
4 inches of soil covering bedrock?

5 A. Yes.

6 Q. Are you also aware that Wisconsin
7 prohibits land application on fields with -- I'm
8 sorry. Let me start over.

9 Are you aware that the Wisconsin
10 Administrative Code actually prohibits land
11 application on fields with less than 20 inches
12 of soil?

13 A. I think it's data in my testimony.

14 Q. Twenty-four inches. I'm sorry.

15 A. Yes.

16 Q. So would you say that's a reasonable
17 proposal as well?

18 A. That's correct.

19 MS. KNOWLES: Thank you.

20 HEARING OFFICER FOX: Ms. Dexter, did you
21 have anything further on the part of the
22 Environmental Groups?

23 MS. DEXTER: No.

24 HEARING OFFICER FOX: Ms. Williams, Ms. Olson

1 on the part of the Agency?

2 MS. WILLIAMS: No.

3 HEARING OFFICER FOX: Ms. Manning, any
4 follow-ups on your part?

5 RE-CROSS-EXAMINATION

6 BY MS. MANNING:

7 Q. I do have a couple of follow-ups.

8 Mr. Trainor, you also had the
9 opportunity to review the testimony of Dr.
10 Panno, I believe, and he spoke in large part
11 about macropores. Could you take a little bit
12 of time to inform the Board about macropores and
13 your sort of assessment of the testimony
14 provided by Dr. Panno?

15 A. Sure. And I have also looked at other
16 testimony that's been filed since mine, so
17 things that have been put on the website.

18 In regard to this, I know that there is
19 a lot of discussion on macropores and
20 micropores. I mean, again, this has to do with
21 solute transport through porous media. I know
22 that there is an issue about the potential for
23 macropores to be a conduit for contaminants to
24 reach bedrock and sensitive to groundwater

1 resources.

2 Essentially how I read this is all
3 soils have macropores. Okay. That's a given.
4 Soils are a dynamic environment. They have a
5 natural equilibrium moisture content they want
6 to achieve in normal conditions. Like this
7 year, for example, we can all testify to the
8 fact that we'd go out and look at our gardens
9 and there would be large cracks, because we
10 didn't have any rain for several months.

11 Those are macropores, but we can also
12 probably testify to the fact that since that
13 time, many of those macropores have changed and
14 shrunk because of the fact that we have gotten
15 significant rains. The importance of this is
16 the soil environment is extremely dynamic.
17 These things change and shift just based on
18 moisture, freeze, temperature. Macropores are
19 not permanent conduits so that you would have
20 the potential for rapid transmission of
21 contaminants to deeper zones at all times.

22 And I think that should be understood
23 in the big picture of just how the environment
24 works. It's very similar to everything else we

1 see on our planet. I mean, it's a dynamic
2 environment. Macropores are not a permanent
3 fixture that allow for the transmission of
4 contaminants to greater depths.

5 HEARING OFFICER FOX: Mr. Trainor. I believe
6 Member Burke had a question for you.

7 MS. MANNING: I don't want to -- if you want
8 to go first, go right ahead.

9 BOARD MEMBER BURKE: It's on a different
10 topic.

11 BY MS. MANNING:

12 Q. It is. Okay. Then I will just ask
13 you -- this is sort of a qualification question.
14 Ms. Dexter asked you whether you were a soil
15 scientist and you said you weren't, but could
16 you explain to the Board your experience with
17 soils?

18 A. Well, I am what's called a geotechnical
19 engineer. So I deal with soils as a building
20 material, as a porous media. Soil scientists
21 specialize in, for example, agronomical
22 application. That's not my area of expertise.
23 However, I have done a lot of testing on soils,
24 to look at soil strength and soil porous

1 behavior.

2 I am very familiar with how soils --
3 how they behave with moisture conditions as I
4 mentioned before, the various electrochemical
5 behaviors of soil and how they behave with
6 interacting with contaminants. The whole idea
7 of land application is based on the fact that
8 soils provide an attenuation capacity for
9 contaminants. The soils themselves interact
10 with contaminants as they pass through the soil
11 matrix, and they are reduced. Chemical
12 properties are changed. That's just the nature
13 of what soils do.

14 So that's -- in response to the
15 question, my expertise is actually dealing with
16 the engineering properties of soils as compared
17 to the agronomic properties of soils, and that's
18 how soil engineers and geotechnical engineers
19 interface.

20 HEARING OFFICER FOX: Anything further, Ms.
21 Manning?

22 MS. MANNING: No.

23 HEARING OFFICER FOX: Very good.

24 BOARD MEMBER BURKE: Mr. Trainor, your

1 pre-filed testimony made some comparisons
2 between the proposed Illinois rules to the
3 Wisconsin program, and when I was listening to
4 Ms. James' testimony earlier, she made a
5 statement that I had a question about, and I am
6 wondering if you had any insight into it.

7 I believe that Ms. James stated that
8 Wisconsin issues permits to non-discharging
9 large CAFOs, and I am wondering whether or not
10 that Wisconsin permit is issued under an NPDES
11 delegated program under the Clean Water Act or
12 if it's some other type of state permit, if you
13 know.

14 THE WITNESS: Yeah. I can't answer your
15 question on that. I'm not familiar with that.

16 BOARD MEMBER BURKE: Thank you.

17 HEARING OFFICER FOX: Any further questions
18 on the part of the Environmental Groups, Ms.
19 Dexter?

20 MS. DEXTER: No. Thank you.

21 HEARING OFFICER FOX: On the part of the
22 Agency?

23 MS. WILLIAMS: None.

24 HEARING OFFICER FOX: Ms. Manning, one last

1 chance for a follow-up before I cut you off.

2 MS. MANNING: No. I was just going to
3 indicate to Member Burke that we would attempt
4 to follow-up with that in terms of an analysis
5 in our public comment to the extent which we can
6 figure it out.

7 BOARD MEMBER BURKE: I think it follows up on
8 Member Zalewski's question to the Environmental
9 Groups. I am wondering if there is any
10 information you can provide on if there is a
11 distinction there.

12 MS. KNOWLES: What is the question? I'm
13 sorry. What is the question?

14 BOARD MEMBER BURKE: Earlier Member Zalewski
15 asked Ms. James about if we know about the
16 universe of states that are issuing permits to
17 large CAFOs, and I guess my question is a little
18 bit -- digs a little bit deeper into if there's
19 any distinction between states issuing permits
20 to only discharging large CAFOs or which states
21 are also issuing permits to non-discharging
22 large CAFOs?

23 MS. KNOWLES: If I may, Dr. James informed me
24 that she feels she could answer the question

1 that was posed to Dr. Trainor regarding the
2 Wisconsin NPDES permits.

3 HEARING OFFICER FOX: Very good. Ms. James,
4 Dr. James, you have been sworn in already. And
5 if you are prepared to respond to a question of
6 that nature, please go ahead.

7 DR. JAMES: Well, I can -- my caveat is that
8 my response has to be fairly limited in nature,
9 not having terribly studied the Wisconsin rule,
10 but in Wisconsin they have what's called a WPDES
11 permit. So it's not a NPDES, but it's a --
12 however you would say that. And so this issue
13 of authority has come up in this rulemaking, and
14 I believe that IEPA has submitted testimony on
15 whether or not they believe they have the
16 authority to regulate all large CAFOs or not.

17 So in some states they have established
18 this authority to regulate large CAFOs, and they
19 have decided to issue permits to those CAFOs.
20 So I think we are down to a legal question of
21 authority. So that's my response.

22 HEARING OFFICER FOX: Fair enough.

23 MS. MANNING: Can I ask a follow-up question
24 of Ms. James?

1 HEARING OFFICER FOX: Please go ahead.

2 MS. MANNING: Ms. James, are you aware of
3 whether they have separate statutory legislative
4 authority to do that in that state?

5 DR. JAMES: I'm not aware. I'm only aware
6 that they have WPDES permits that apply to all
7 large CAFOs.

8 HEARING OFFICER FOX: Do we have any further
9 questions then for Mr. Trainor on the basis of
10 his pre-filed testimony or statement today?

11 MS. MANNING: I would ask that I have the
12 right to recall Mr. Trainor after Mr. -- Dr.
13 Keefer's testimony to the extent to which we
14 might have some responsive testimony to Dr.
15 Keefer's testimony.

16 HEARING OFFICER FOX: So noted. Mr. Trainor,
17 we have come at this point to the conclusion of
18 the questions based on your pre-filed testimony.
19 Thank you for your -- for those responses in
20 particular.

21 And Mr. Keefer, I know you are waiting
22 in the back, and we are prepared to turn to you
23 if you are all set to come forward. Actually,
24 Ms. Manning, if you don't object, that chair

1 works out very well for witnesses.

2 (Whereupon, the witness was duly
3 sworn.)

4 HEARING OFFICER FOX: Mr. Keefer, as you saw
5 Mr. Trainor, if you have any summary or
6 introduction you would like to offer, please go
7 ahead if you are set to do that.

8 MR. KEEFER: My name is Don Keefer. I work
9 at the Illinois State Geological Survey, which
10 is now a department within the University of
11 Illinois through the Prairie Research Institute.
12 I have been at the Survey for 27 years
13 associated with the groundwater section and
14 pretty much at all times. I am currently the
15 head of hydrogeology and geophysics section at
16 the Survey. I am a licensed professional
17 geologist in Illinois. I have a bachelor's in
18 geology and a master's in soils, soil water
19 quality through the University of Illinois. The
20 degree was actually through the Department of
21 Agronomy, but my thesis looked at preferential
22 transport of pesticides and nitrate in tile
23 drained soils. So that's some of my background.

24 I want to say also from the start that

1 I was asked to testify from one of the Board
2 Members. I'm not an advocate for agriculture or
3 the environment. At the Survey we are basically
4 there to represent the science as we understand
5 it. So that's where my testimony comes from.
6 And I wanted to note also to start, it wasn't in
7 my pre-filed testimony, but is part of my
8 comments here, that there seems to be a
9 potential conflict that exists really regarding
10 the delineation of karst aquifers within the
11 LMFA, and I don't know honestly whether this is
12 to be addressed by this current CAFO ruling, but
13 it's caused problems with the Nora dairy in
14 particular where what we have in the LMFA
15 guidance for identifying karst aquifers is
16 basically insufficient from a hydrologic
17 perspective. And the conflict then exists
18 between the Illinois State Geologic Survey known
19 as a mandate in Illinois statute, a directive in
20 Illinois statute to define the geologic settings
21 in Illinois, and then that guidance, which is
22 given under the LMFA, which is again,
23 hydrogeologically from our perspective
24 insufficient at least in terms of what can be

1 identifiable as karst.

2 I also wanted to note that I think the
3 potential of the karst aquifers within that and
4 even within this CAFO proposed language is
5 insufficient in the sense that thin cover over
6 karst aquifers -- thin cover, specifically, it
7 is potentially impossible to avoid some water
8 quality degradation in the karst aquifers from a
9 land application of non-point source types of
10 chemicals. That could be pesticides. That
11 could be nitrates. That could be manure. The
12 depth with regards to which you are safe is very
13 debatable, and we can talk to that a little bit
14 later.

15 To get back to my -- to my pre-filed
16 testimony, basically I am trying to provide
17 testimony on the importance of macropores and
18 the transport of water and constituents through
19 the soil, the nature of soil water and shallow
20 groundwater flow in the agricultural field
21 setting, specifically with regards to subsurface
22 tile drains. And then I did have a couple --
23 after looking through the proposed language, I
24 did have a couple of concerns regarding some of

1 the proposed changes.

2 In summary of my pre-filed testimony, I
3 really feel that you need to consider macropores
4 as pretty much ubiquitous in a situation unless
5 you have bare rock at the surface, and in
6 Illinois we don't have that in a lot of
7 situations. And the real -- to summarize,
8 again, some of this, one of the major factors of
9 this isn't necessarily the size of the
10 macropore. It's the fact that it's basically
11 like a straight path downwards; whereas if it's
12 going through the matrix or what we call a
13 matrix or microporosity, the pathway is very
14 tortuous, and then it does have the ability to
15 interact much more -- any water or constituents
16 have the ability to interact much more with the
17 materials in the soil.

18 When it's flowing through macropores,
19 the travel time is amazingly fast. We have
20 experimented with that directly at the Survey,
21 and the literature is really replete with that
22 kind of observation. Let's see. With regards
23 to livestock waste applied fields without tile
24 drains, I noted it appears that the constituents

1 at least from my perspective with the largest
2 risk for transport to aquifers within 50 feet of
3 land surface are likely to be nitrates,
4 pathogens, hormones, antibiotics.

5 In areas where there are no aquifers
6 within 50 feet of land surface and where there
7 are no private large diameter wells, water
8 supply wells within 800 feet, it appears
9 unlikely that macropores will facilitate or will
10 cause any significant contamination to
11 groundwater or surface waters from properly
12 managed livestock waste application.

13 Regarding subsurface tile drains, it's
14 been my experience in my review of the
15 literature that land applied chemicals are often
16 found in tile effluent, period. There is not
17 much we can do about that. Tiles in Illinois
18 are typically set about three feet below land
19 surface, and their objective is really to
20 control and they are put in in situations where
21 the seasonal high water table is high enough
22 into the root zone that it will cause plants to
23 die and the yields to be low. And typically
24 that's in the foot to three feet.

1 So we find that at a spacing of
2 approximately 100 feet in Illinois' fine grained
3 soils we can put tiles in at about three feet,
4 maintain the water table in the seasonal high
5 period at approximately three feet and enable
6 enough oxygen to be in the upper three feet to
7 allow the plants to survive. And that's really
8 the design of the tile system and why they work.

9 Again, because macropores are
10 ubiquitous, these -- you basically have these
11 fractured little networks that allow transfer
12 down three feet and then laterally across the
13 top of the shallow water table when the tiles
14 are flowing so that you can get rapid transport
15 within an inch of rain. I document that in a
16 couple of studies.

17 Since this is pre-filed and online, I
18 won't read the whole thing. I just wanted to
19 identify a couple of key components. I do feel
20 that there doesn't seem to be any way to ensure
21 the discharge of pollutants at acceptable levels
22 without monitoring. It doesn't mean that it
23 won't be occurring probably the majority of the
24 time, but from the literature it seems like

1 there are frequent times even with regards to
2 the livestock waste application where you will
3 get high episodes of nutrient concentration, and
4 it's not just what are agricultural nutrients
5 like nitrogen and phosphorus, but you have the
6 potential then with any other water borne
7 constituents is the term I use, which can
8 include bacteria or viruses, which haven't been
9 discussed much, antibiotics, and I've even seen
10 estrogen compounds, which have significant
11 impacts to surface water and to humans if you
12 are consuming that largely.

13 That doesn't mean they are in high
14 concentration, because I'm not qualified through
15 my experience to comment on that, but I wanted
16 to raise the issue that these tiles are designed
17 to move water rapidly and they do that
18 effectively. And you put something on them and
19 rain on it, a fraction of that is going to move
20 and, you know, the fraction quantity is very
21 difficult to predict.

22 So with regards to other language
23 worthy of note, in Section 502.106(b)(1) the
24 section notes that, The Agency cannot require

1 NPDES permits for certain CAFOs unless they meet
2 the specific conditions. I just, I guess, would
3 encourage the consideration for inclusion of
4 subsurface tiles in this section. Again, there
5 are many studies that document high
6 concentrations of glutens from livestock waste.
7 I have another one here. It's just worth the
8 Board and the agency's Consideration.

9 At 502.615(a)(6) regarding nutrient
10 transport potential, tiles in the locations are
11 noted. Again, I'm not sure that its just tiles
12 in the locations that should be identified. I
13 think in the presence of subsurface tiles in
14 general without simply an inlet are significant
15 pathways to potential routes to surface water
16 that need to be considered.

17 The water table, at 502.620 with
18 regards to protocol of the land application of
19 the waste, Subsection K talks about with the
20 water tables within two feet of the land
21 surface, but there is no recommendations given
22 on how that should be observed. I just wanted
23 to point out that the USDA, NRCS, has published
24 soil surveys, and it's very -- it's fairly well

1 documented. It's very well documented that
2 basically soil profiles can be characterized
3 very quickly by a soil scientist to identify
4 seasonal high water table ranges within a fairly
5 good precision of accuracy.

6 There is the concern that some
7 situations will be perched, which in the
8 definition of perched, what typically is used is
9 that you have a saturated zone above a zone
10 that's unsaturated and then another saturated
11 zone at depth. And in that condition the soil
12 survey is not very useful for identifying that.
13 So it's not a sole source, but at the same time,
14 if you are looking for shallow saturated
15 conditions with regard to the application of the
16 waste, that still might be a very useful tool
17 and it's simple and free and available.

18 And then 502.630(a)(1)(A) Winter
19 Application Prohibition; the rule currently
20 states that the surface application of livestock
21 waste on frozen, ice covered or snow covered
22 ground is prohibited unless no practical
23 alternative measures. I'm not criticizing the
24 need occasionally to accommodate emergencies.

1 I'm not testifying to that at all, in fact.
2 That's not my area of expertise, but I am
3 concerned that this is insufficient to protect
4 surface water quality simply because if the
5 ground is frozen, and we all know that if you
6 are planning -- if you are putting in a patio,
7 they recommend in Illinois frequently, you know,
8 a foot and a half to three feet potentially just
9 to avoid frost heave. We typically have in the
10 northern half of Illinois a couple feet of frost
11 of frozen ground. The ground thaws typically
12 from top down, and when it's frozen, you are not
13 moving things through it. So if you apply the
14 waste on top of the ground on the frozen soil,
15 it will sit there until there is a melt, and
16 they may attract a melt because the coloration
17 will bring in sunlight and create heat.

18 I mean, it's just going to go
19 laterally, and that's all it has to do. You
20 know that if you think about snow. When the
21 snow starts to thaw, that's really what happens.
22 It ponds and then runs off, and that can be in a
23 sloping soil or flat. I did my master's thesis
24 on flat, 0 to 2 percent soils with tile drains,

1 and spent a lot of time in the rain just
2 watching water flow on these soils.

3 And they typically exceed the
4 infiltration capacity and have saturating
5 conditions in most spring and fall storms. And
6 so in those situations, the water has to run
7 off, and so you always see gullies and erosional
8 features even in flat soils, and they look for
9 the road ditches and go, and that's why the
10 roadside ditches are there to take the water off
11 the landscape. So I just site that as a
12 hydrologic reality, and regulatorily you will
13 have to figure a way through that, but I just
14 wanted to raise that point.

15 So I think that probably provides us --
16 if I could, also, I wanted -- with regard to Mr.
17 Trainor's testimony, I wanted to comment on a
18 couple of issues from my perspective. He made a
19 comment that groundwater is always reducing,
20 lacking in oxygen. Well, that really isn't
21 true. I was talking to Mr. Panno in the back
22 who has testified in DeKalb here. Mr. Panno is
23 our karst expert at the ISGS, and he said he has
24 basically sampled karst aquifers in Missouri,

1 Indiana, Illinois, Wisconsin and Kentucky, and
2 all of those are highly oxic waters unless you
3 get to significant depth in the limestone and
4 oftentimes below some kind of confining unit.

5 Typically tile effluent and shallow
6 groundwater is fairly oxidized still. It really
7 depends on the time in that system. So that's
8 the complexity. The longer it stays in
9 groundwater before it gets to the surface water,
10 though, the more oxygen that typically gets
11 removed from it. So groundwater can be
12 reducing, but not all groundwater, and
13 particularly not shallow groundwater.

14 And I do, again, as with my testimony,
15 I don't agree that macropores are not permanent
16 conditions. Macropores are. In fact, the
17 largest feature that I have seen of macropores
18 in terms of solute transport and water transport
19 are, as I described in testimony -- you know,
20 it's a little bit technical and I apologize for
21 that, but the idea is that soils develop through
22 shrinking and swelling and expanding and within
23 the clay movement in Illinois and organic
24 bacterial activity, and what happens is we form

1 these things called peds which are in the
2 shallow part of the soil. You can probably see
3 them, but it's fairly stable and it's not
4 encrusted with clay, but it has accumulations of
5 clay, and that creates a stability that is
6 long-term, thousands of years terms.

7 Things like wormholes, it depends on
8 the kind of worm. Earthworms -- what do they
9 call them -- night crawlers, I did a lot of
10 research at a farm where a guy actually was
11 learning how to harvest and grow worms. So we
12 talked about worm activity, and night crawlers
13 tend to be vertical, whereas some of the red
14 worms tend to be more horizontal.

15 So the vertical ones -- kind of like
16 the plant root if you have ever dug in a garden,
17 the plant root might be open, but the hole from
18 that root is stable, fairly stable for the
19 long-term and those can be there -- number-wise,
20 they are drafted by these inter-ped -- I call
21 them the inter-ped fractures that are very
22 stable. There are some environments in the
23 world where the soils are swelling to the point
24 where they really do believe they are

1 obliterated, but Illinois does not have that
2 degree of swelling, and so these peds are
3 fairly -- they are stable features and the
4 joints between them tend to be stable.

5 I have done dye studies with red dye,
6 rhodamine, where we irrigate it on the land
7 surface, and then immediately after about an
8 inch worth of irrigation, an inch only of
9 rainfall during irrigation of sprinklers, we
10 would start digging and we would get down four
11 feet and that dye was already at four feet, and
12 it was these inter-ped fractures that were
13 responsible for transport within an hour of an
14 inch of rain, and it shouldn't -- you know, most
15 of our basic theories of water flow don't
16 accommodate that kind of transport. So, anyway,
17 I will use that as my summary of my testimony,
18 and I will be happy to take any questions.

19 HEARING OFFICER FOX: Very good, Mr. Keefer.
20 I am confident there will be some questions.

21 Does the Agricultural Coalition or the
22 Agency wish to begin or the Environmental
23 Groups?

24

1 DONALD KEEFER,
2 having been first duly sworn, was examined and
3 testified as follows:

4 DIRECT EXAMINATION

5 BY MS. OLSON:

6 Q. I have a few questions. In your
7 testimony you describe macropores as something
8 that is 0.08 millimeters or larger; is that
9 right?

10 A. In my testimony I referenced the USDA
11 publication, and it was just one USDA
12 publication. USDA may even have a couple
13 different definitions, but I found that to be
14 consistent with another couple of articles I had
15 seen in the literature. It's fairly arbitrary.

16 Q. Okay. And can you describe to me how
17 small is 0.08?

18 A. Yeah, it's small. It's very small.

19 Q. Is it the size of a pin?

20 A. I don't honestly know that. That's a
21 good question. I don't honestly have a good
22 measure. It's 0.08 millimeters. I think it's
23 maybe even smaller than that, and I think the
24 important thing in my mind is, again, as I

1 mentioned, these things are fairly flat and
2 vertical or horizontal and so it's that
3 continuity and lack of tortuosity that becomes
4 the important part.

5 I was at a research conference back in
6 '88 or '89, and this -- it was on fractures in
7 clays and transport of contaminants through
8 them, and it was a major research conference and
9 the discussion was that after some numerical
10 modeling based on where they found contaminants
11 through the clay, that the fractures had to be
12 0.03 millimeters, which is quite a bit smaller,
13 and that's as small as some of the pores in the
14 micropores that we call. So the pore size --
15 excuse me. What I gained from that was that
16 pore size was not as much the issue as the fact
17 that they are continuous, and these are fairly
18 planer. So I don't know if that helps.

19 Q. I want to get back to the fact that
20 they are continuous, but before I move on, I am
21 going to try to pin you down a little bit more
22 on how big exactly 0.08 millimeters is. Would
23 you agree that it's something that you can or
24 cannot see? Can you see it without the aid of a

1 microscope?

2 A. You know, I can't answer that directly.
3 It's possible that you can see affects of those
4 pores, and what I mean by that is that you will
5 sometimes get organic accumulations on some of
6 these or clay accumulations that are observable
7 more than the actual pore aperture itself. So I
8 really haven't really tried to quantify the size
9 of the pore you can visibly see. I don't think
10 it's possible -- I saw one comment at some point
11 about finding a size that farmers are -- or
12 anyone, a sole classifier could identify
13 visibly. And my point of the testimony was that
14 that's an impractical approach to the problem.
15 So if that's getting more at where you are
16 heading --

17 Q. I will get there, too.

18 A. That's fine.

19 Q. So the other thing, going back to the
20 length, you said the important thing is that not
21 how big they are, but the fact that they go down
22 into the soil?

23 A. Correct.

24 Q. Can you tell me how far they go down in

1 the soil on average?

2 A. Yeah. Well, I can give you some
3 insight on that. In Illinois in particular, the
4 soil survey tends to look at soils as being --
5 most of the soils they describe -- and soils are
6 weathering profiles of geologic materials. So
7 that's what we think of as the soil. Most of
8 those are about 60 inches that -- they found
9 that to be an effective depth for characterizing
10 things, and that tends to be the highly
11 weathered portion of the top of the land
12 surface. It's about 60 inches. Now, when you
13 start at the -- you know, as any time you have
14 gone in a farmer's field, you can get granules
15 or peds, if you will, that are really small, and
16 as you go down, they get bigger, and they get
17 bigger and they get bigger. And then at about
18 four or five feet, you can get fractures that
19 are spaced maybe that far apart, and these
20 networks are all -- they are interconnected.
21 And so as you go to depth, it has more to do
22 with -- I will mention back to this conference I
23 was at in the late 80's. They felt that there
24 probably weren't -- this was, you know, in the

1 late 80's. I was just starting my career. So
2 these were people who were top in the field, and
3 they felt that based on the results of
4 contaminant transport, okay, that there probably
5 were no deposits of clay that could be
6 considered unfractured from a water quality
7 protection perspective, because the spacing of
8 the fracture is the issue, and that's a really
9 hard one to answer.

10 But I have seen them in Illinois in
11 tills where they're at four to five feet, you
12 are talking through a weathering profile about
13 two to three feet wide.

14 Q. So you said they can be about
15 60 inches. So that's five feet?

16 A. The soil is oftentimes characterized
17 within 60 inches of the land surface. It can be
18 shallower. It depends on the landscape.

19 Q. What is your opinion of a definition of
20 a macropore that is a hole in the ground and
21 would not be considered a macropore unless it
22 was at least eight feet deep?

23 A. Yeah. I mean, I think a macropore can
24 be that long. You know, I don't know that it

1 has to be any specific length.

2 Q. Can you tell us the length that you
3 indicated with your hand?

4 A. Maybe an inch, right? And that's
5 arbitrary. Again, I think it has more to do
6 with what you might call the -- you know, the
7 long axis versus the short axis. So if it's
8 like a worm cylinder or that kind of -- or a
9 root hole where it clearly has got a short
10 dimension or like a circumference is much
11 shorter than its length, I think you might be
12 looking at something like a macropore, but we --
13 I have not typically seen classifications where
14 they are worried about that type of -- how short
15 can it be. Do you know what I mean?

16 Q. In your testimony you state, quote,
17 "The most common type of macropore includes the
18 fractures or openings between individual soil
19 aggregates?"

20 A. Yeah.

21 Q. Can you tell me how large this type of
22 macropore is, the most common type?

23 A. Yeah. I think that's larger than 0.08.
24 I think that's probably going to be closer to

1 like a 0.1 millimeter type of thing, and it may
2 depend on the moisture content in the soil.

3 As Mr. Trainor mentioned and as we all
4 know, as soil dries out, it tends to shrink
5 together, and present fractures tend to have a
6 larger aperture, and then when they are fully
7 wet, the clay is -- over time will slowly
8 vibrate and then it can slowly close that back
9 up, but what we found in Illinois soil is that
10 even if these close to 0.08, then they are going
11 to open back up again as the water drains. And
12 so it is dynamic in that sense, but they still
13 remain on the same joints, and they still are --
14 on the longitudinal profile it's just like a
15 straight line almost.

16 Q. So you are saying that they can change.
17 So can you tell me whether or not a macropore
18 can be become a micropore?

19 A. Well, in the context that we are
20 referring to, I don't think you can, because
21 while the aperture or the size of it can be
22 consistent with what you would see in the middle
23 of -- see, that's what I was referring to
24 earlier in that conference. While the size of

1 the fracture may be even smaller than 0.08
2 millimeters -- may be it's at 0.03 -- the fact
3 that it still is continuous surface at 0.03
4 means that it has this preferential transport
5 capability, and that's why we worry about
6 macropores. Macropores broke our understanding
7 of the theory of water flow through soil and
8 permeable materials.

9 We used to think of them as these
10 uniform what we call porous medias or sandbox
11 with no interruptions and everything flowed in a
12 very uniform sense with a little bit of a
13 leading edge in the middle and a little bit of
14 drag on the sides, but otherwise it was kind of
15 like a plug flow we would call it. And then we
16 found that the contaminant concentrations in
17 wells and other things didn't match that at all,
18 and they were much faster, orders of magnitude
19 faster than that.

20 So when we started looking, we were
21 ignoring all these features that can be
22 classified as macropores, joint and tree root
23 holes and that type of thing. And so that's
24 really where the concept of a macropore came

1 from is that term of what we call an observable
2 feature that kind of contributes to this
3 preferential water flow and contaminant
4 transport behavior, and it happens to be an
5 opening in the soil that has continuity and
6 typically more aperture, more size, than your
7 soil macropore -- micropore.

8 Does that make sense? Does that answer
9 your question? Have I lost you completely.

10 Q. No. I may --

11 A. Tell me if I'm getting too technical.
12 It's hard to dumb this -- I mean, you know what
13 I mean. You know what I am saying. This is
14 technical, and what we are trying to do is
15 convert technical issues into nontechnical
16 understandings and so our job is to talk to
17 peers about how do we advance this
18 understanding. So there is -- everybody has got
19 a different level of insight on this, and I want
20 to make sure that you get what I am saying.

21 Q. I want to make sure that the Board gets
22 what you are saying.

23 A. I appreciate that.

24 Q. So I am going to ask you another

1 question.

2 You talk about -- in your -- On Page 3
3 of your testimony you said that you conducted
4 research with less than one inch of irritation.
5 Can you be more specific about what you mean by
6 less than one inch?

7 A. Some of those dye studies where we
8 basically applied -- we built a little structure
9 and then we used pesticide sprayer nozzles and a
10 50-gallon tank with dye in it or a barrel with
11 dye in it, and we sprayed it on the land surface
12 with the red dye, and then we would, again, try
13 to -- for the land surface area based on the
14 quantity of water, we could estimate the
15 effective rainfall amount. And then I had
16 another study where we didn't apply dye. It was
17 actually in a normal agricultural field, and we
18 applied -- if this is a tile drain going this
19 way, we applied -- and it's hard to describe,
20 but we applied a specific tracer 15 meters away
21 from that tile. We applied it parallel to the
22 tiles that went into the field, and then we had
23 another one 30 meters away, which is sort of the
24 maximum capture zone estimated distance, and we

1 had this tracer go down 3 feet and over 15
2 meters in less than an inch of rain, and we
3 detected in our tile table --

4 Q. I'm trying to pinpoint exactly what you
5 mean when you say less than an inch of rain.
6 Are you talking about --

7 A. Okay. We have a rain gage --

8 Q. -- three-quarters of an inch of rain?

9 A. Oh, what exact number?

10 Q. What exact amount are you referring to
11 when you say less than an inch of rain?

12 A. Oh, man, that was '96. I think that --
13 I think it was like three-quarters of an inch.

14 Q. So have you --

15 A. It left me very uncomfortable, and we
16 looked for errors in our design and our
17 implementation and there was nothing, but it was
18 consistent with other things we've seen.

19 Q. Have you conducted research where you
20 looked at the amount of irrigation traveling
21 through the soil when you only put a half an
22 inch?

23 A. I can't answer that honestly. I don't
24 know.

1 Q. What about a fourth of an inch?

2 A. Probably not. We wouldn't
3 anticipate -- we were out -- when we were doing
4 the tracer test with the dye, we were out there
5 to see where it would go, and we were there to
6 see which kinds, was it the roots, or the
7 wormholes or these inter-ped fractures that
8 dominated. At the time -- and this was in the
9 late 80's -- the literature suggested it was
10 roots and worm holes, and we were -- like I
11 said, we were working on a farm with a guy
12 actually who was trying to find out how to
13 harvest and grow worms. So there was worms
14 everywhere, and it wasn't the wormholes. It was
15 these weathering profiles, inter-ped kind of
16 inter-aggregate joints.

17 Q. Do you know how quickly livestock
18 manure moves through soil when it's applied at a
19 rate of a half an inch?

20 A. The issue with soil is its infiltration
21 capacity, and that's a rate at which you can
22 accept water. If you can apply something at a
23 rate lower than its ability to accept it, it can
24 kind of suck it in, and that's what we found.

1 And everybody -- it's kind of basic soil
2 physics. If you apply rain at a rate faster
3 than its ability to take it in, then you get
4 ponding, and once you can get ponding even
5 localized, then you get water movement into
6 macropores. And that's the issue.

7 Water won't flow into macropores if the
8 rate of rainfall is -- or irrigation is lower
9 than the infiltration capacity because the water
10 can absorb it.

11 Q. Okay. You talked about doing dyeing.
12 Can you explain to me how much it costs to do
13 one of those studies?

14 A. That was not much at all. I didn't
15 have much of a budget. So, I mean, the dye, a
16 little pint of the rhodamine, I think 10 to
17 15 -- maybe \$20, and then I used PVC water
18 supply pipe to build an eight-foot structure and
19 20 nozzles. I mean, you know, a couple hundred
20 dollars of equipment.

21 Q. Do you think that an expert would be
22 needed to conduct such a study?

23 A. What are your objectives with the
24 study?

1 Q. To determine whether or not your field
2 has macropores.

3 A. I think it's an ill-posed question.
4 Your field contains macropores.

5 Q. How about to determine the depth of
6 your macropores?

7 A. That would -- we found the movement to
8 the top of the water table. So then that could
9 be useful if you wanted to look at that. Again,
10 it's a rate limiting thing, and that kind of
11 thing is not high tech, if that's your question.
12 It's a very approachable study.

13 Q. Do you think that a farmer can go out
14 and conduct a study him or herself?

15 A. Well, I would be willing to bet that
16 the farmers would be more mechanically adept
17 than I was, given the equipment was a pump and
18 pesticide sprayer heads, and a bucket with dye.
19 So they have got to get the dye and spray it.
20 So, yes, they would be able. They would
21 probably have a backhoe to excavate as well, and
22 I was just using a shovel. So, I mean, it's not
23 a hard thing to do.

24 I would question the relative value of

1 that, but, yes.

2 BOARD MEMBER RAO: May I ask a follow-up
3 question?

4 MS. OLSON: Sure.

5 BOARD MEMBER RAO: I think one of the reasons
6 why the IEPA is asking you these questions are
7 because the Environmental Groups have proposed a
8 requirement which pretty much says that, you
9 know, you cannot apply livestock waste to soils
10 if macropores are present where there is
11 subsurface drain tiles present. So with that
12 kind of a requirement, do you see any point in
13 testing the soil for the presence of macropores,
14 because you have testified they're pretty much
15 ubiquitous and it's always present?

16 THE WITNESS: If you are going to adopt that,
17 I would say there would be no point. I mean, in
18 Illinois soils, especially tile draining soils,
19 there is going to be macropores throughout the
20 field. I mean, tiles are used in the high water
21 table conditions, and they can only work in
22 situations where there is this inter-aggregate
23 porosity, these joints that I talked about,
24 where there is enough of those to allow water

1 flow at a rapid enough rate to bring that water
2 table down in a couple days. That's how they --
3 there is some soils that are too low
4 permeability to allow the water flux out, even
5 though the water table is high, and you can't
6 drain those with tiles. So if that's --

7 BOARD MEMBER RAO: So there is no point for a
8 farmer to try to demonstrate there is no
9 macropores, and I am going to apply waste in
10 that kind of a situation?

11 THE WITNESS: I would say there is no point
12 in that, because you are going to have them.

13 BOARD MEMBER RAO: Thank you.

14 DR. JAMES: Can I make a clarifying point?

15 HEARING OFFICER FOX: Please go ahead, Dr.
16 James.

17 DR. JAMES: I would just like to clarify that
18 in our proposal we also proposed a definition of
19 macropore, and that definition would be a
20 macropore that actually reaches a tile drain.
21 So macropores with the idea that, yes, we don't
22 need to regulate macropores that go only a few
23 inches, but macropores that go deep enough to
24 reach a tile drain could pose a threat to water

1 quality. So that's just my clarification.

2 THE WITNESS: Yeah, I guess to respond to
3 that hydrologically, hydrogeologically, I don't
4 feel like the classification of a macropore is
5 even necessary in that context. As I kind of
6 suggested, I think tile drains are vulnerable to
7 occurrence of any land applied chemicals. I
8 do -- and that doesn't mean to say, and I
9 hope -- to try to clarify my point on that, I do
10 believe that liquid manure and manure can be
11 applied to lands without resulting in
12 contamination of surface water, but I do also
13 believe that there can be conditions where it's
14 applied to land and that results in some
15 contamination at least periodically throughout
16 the year.

17 BOARD MEMBER RAO: My questions were more
18 directed towards how you would implement the
19 kind of a requirement that the Environmental
20 Groups have proposed. So I was wondering, you
21 know, if someone wants to demonstrate the
22 presence of macropores or absence of macropores,
23 how would they go about doing it or whether
24 there is a point.

1 THE WITNESS: That kind of a study would be
2 very effective. If you have -- well, I mean,
3 the soil survey -- if it's got structure, I
4 mean, you could use a soil survey for that. You
5 don't have to even -- you know, the soil surveys
6 are pretty accurate. There is locally errors in
7 it, but the soil descriptions in those describe
8 whether there are peds, and if there are peds
9 and you have the soil develop, you will have
10 macropores.

11 So in Illinois the shallower soils tend
12 to be found on slopes and higher uplands or in
13 very thin, rocky locations, but if you have --
14 most of Illinois you are -- you know, if it's
15 greater than five feet depth, that stuff above
16 the -- depth of the bedrock -- excuse me. The
17 stuff above the bedrock will have macropores in
18 it, and if it's tile drained, it's not going to
19 be on a slope, because there is no need to tile
20 drain a slope. Do you know what I mean? So it
21 kind of self-corrects.

22 BOARD MEMBER RAO: Thank you.

23 HEARING OFFICER FOX: Do you have any further
24 questions?

1 BY MS. OLSON:

2 Q. I have a few more.

3 I think I heard you say that you are
4 not saying -- your testimony here today is not
5 that a prohibition on -- for land application on
6 a field with macropores; is that right?

7 A. Correct.

8 Q. And does that hold true even if the
9 field has subsurface drainage?

10 A. Correct.

11 Q. And is that because you can change the
12 application rates?

13 A. Yes.

14 Q. To make it protective?

15 A. Yes. I'm not -- I saw -- in the
16 literature someone suggested trying to keep it
17 off of -- like don't apply it over the tile,
18 because right over the tile is the most
19 vulnerable, and my point in including that study
20 that I conducted where we had 15 meters away
21 something go down to the water table and over in
22 three-quarters of an inch of rainfall was there
23 to suggest that you can't worry about just over
24 the tile, because it's the whole field pretty

1 much. You just land apply the waste, and if you
2 can do it in a way using best practices that
3 results in effluent through the tile and it's
4 within water quality parameters, then you have
5 met your goal.

6 And I think it can be done. It depends
7 on the rate, how much do you apply and what -- I
8 don't know enough about manure characteristics,
9 the liquidity. There is solid content, and then
10 what are you worried about, nitrogen,
11 phosphorus, pathogens, estrogen? That's not
12 something I have done a lot with, but it's
13 prevalent in the literature.

14 Q. Do you have an opinion about whether
15 tilling the field before land applying would
16 decrease transport to subsurface drainage?

17 A. Yeah. My advisor of my master's
18 thesis, and again, it's in tile draining, he was
19 a specialist in tillage and water quality, and
20 so that's why he had me on, and it does have
21 some effects, but the literature can be a little
22 bit -- it does have some positive benefits to
23 the water quality in that. And I think in this
24 article that I had examined notes that, but the

1 results tend to be inconsistent, and it's a
2 timing thing, because the macropores are going
3 to redevelop over time that will connect
4 wherever you stop tilling with where you tilled,
5 and I don't know that it's -- without
6 monitoring, I guess I wasn't comfortable just
7 saying that's a sufficient coverage. I don't
8 believe that's a sufficient coverage from my
9 understanding of the literature and the physics
10 of what's involved.

11 Q. I want to go to one of the comments
12 that you made when you first started your
13 testimony here today. You said that there would
14 be a potential -- there is a potential conflict,
15 and you said it has to do with, I believe, the
16 LMFA's definition of karst; is that correct?

17 A. Karst aquifers, yeah.

18 Q. And I believe you also said that you
19 believe that definition is insufficient?

20 A. Yes.

21 Q. Can you explain why you believe it's
22 insufficient?

23 A. Yeah, I would be happy to. The
24 treatment of karst -- and I think Mr. Panno

1 testified to this in DeKalb. Karst isn't
2 something that exists on a localized area. It
3 happens systematically across a landscape, and
4 it isn't the kind of situation where you can
5 have a little carved out niche that doesn't get
6 karstified in that sense. It's really a
7 reference to the processes that have happened on
8 a rock formation, which is a thickness of
9 deposits usually across many miles. Those can
10 be eroded, and they can be locally present and
11 absent, and that's where you might see karst
12 here and not over here, because the rocks that
13 make the karst are eroding over here. And I
14 have forgotten your question.

15 So the problem with the LMFA is that it
16 allows for point characterization on a site to
17 identify karst or not, and that's just not --
18 it's not logical. It's not possible, and I
19 think that the Nora dairy conflict proved that
20 exactly, and I had very heated discussions with
21 people pro-dairy on the phone with regard to
22 defending our position why geologically,
23 hydrogeologically we feel this way. I mean,
24 there is a lot of literature out there about why

1 that is the case, and, you know, I can answer
2 more specific questions if you would like with a
3 follow-up.

4 You can't characterize karst from the
5 site specific characterization capabilities, and
6 I don't agree with Mr. Trainor's comments that
7 it takes multiple years and hundreds of
8 thousands of dollars. Mr. Panno and another
9 colleague, Dr. Weibel, at the Illinois State
10 Geological Survey over a period of maybe three
11 or four years defined a map by the scale of 1 to
12 500,000 with the major karst areas in Illinois,
13 and while that's not suitable for site specific
14 location of facilities, it identifies the major
15 karst areas, and you'd want to go in and look at
16 that, but what it shows you is that we have
17 identified rock formations and dissolution
18 features; in other words, dissolving features of
19 those rocks that are consistent with karst, and
20 so we label these areas karst.

21 As you get towards the margins, you may
22 want to have -- you need more site specific
23 information to make sure that you are still
24 within that rock formation, but in the middle of

1 those, unless you have an erosion of that rock
2 formation, it's a fairly safe bet that you are
3 in.

4 Q. So I just want to make sure I
5 understand that. You are saying that karst
6 should not be a site specific determination, but
7 an area wide determination?

8 A. Yes.

9 Q. And when you say area wide, are you
10 saying like county by county? What is your --

11 A. I don't think it needs to be county
12 level, but I mean, at least on what -- the
13 township is a 36-square mile area and that type
14 of thing would be probably appropriate. You are
15 looking for regional -- you are looking for
16 features that occur and unfortunately that's
17 where I looked through ASTM's guidelines. ASTM
18 is a group that helps set guidelines for all
19 kinds of things, and they have a lot of
20 environmental guidance.

21 There was a withdrawn document on
22 groundwater monitoring and karst that was really
23 helpful. The only reason it was withdrawn is
24 that the primary author died, and they have to

1 be renewed every periodic time, and he died and
2 wasn't able to renew it, but there isn't
3 unfortunately an ASTM guideline that I could
4 find on defining karst. Sam found a very nice
5 proceedings article that's very exhaustive
6 about -- that includes information on defining
7 karst.

8 Information from that could be provided
9 in a language that would be helpful if you would
10 like, but it isn't -- again, it isn't the kind
11 of thing -- farmers typically if they have the
12 ability -- it depends on how dynamic the erosion
13 is. If the erosion isn't terribly dynamic like
14 down in southwest Illinois, you can fill these
15 things and plant over them, and how do you know
16 where the sinkhole is? The sinkhole is still
17 there.

18 Now, you will have a reduced water flow
19 to the sinkhole, but the water once it hits the
20 top of rock hits a fracture system, and it flows
21 faster than it can come through, and so that
22 creates pipings in the soil above, different
23 than it would in sandstone, because once it hits
24 the sandstone, it's got to go in through those

1 micropores, which are slow, and it doesn't -- it
2 doesn't have the same vulnerability to
3 contamination, is what I am trying to point out.

4 Q. I want to ask a few other questions
5 that are not related to karst.

6 Do you -- to your knowledge, can you
7 tell me whether or not subsurface tile drains
8 are manmade?

9 A. Yes, they are.

10 Q. And when you formulated your opinions
11 on winter that you have in your testimony, did
12 you consider that the Illinois EPA prohibits
13 winter application unless there is no practical
14 alternative?

15 A. Yes. And my point wasn't to be
16 critical of existing rule language. My point
17 was just simply to ensure that this perspective
18 was offered in the testimony. That's all.
19 There has got to be a practical solution to it,
20 and I'm not here to offer those up.

21 MS. OLSON: Thank you.

22 HEARING OFFICER FOX: Nothing further on the
23 part of the Agency? Ms. Manning, do you have
24 any follow-up questions?

1 CROSS-EXAMINATION

2 BY MS. MANNING:

3 Q. Just a couple of things. What's your
4 understanding of the purpose for subsurface tile
5 drains? Why were they built?

6 A. Their main goal is to move water from
7 the subsurface. In an agricultural setting they
8 are -- agronomically they are to lower the water
9 table during periods where the water table is
10 high, and the plants can be vulnerable to
11 saturation. If the roots are in saturated soil,
12 they don't get enough oxygen to grow. They need
13 a certain amount of oxygen.

14 Q. Let me just ask you about your -- try
15 to understand your position about the LMFA and
16 karst.

17 A. Yeah.

18 Q. The LMFA has the definition of karst
19 which is used to require certain kinds of design
20 features on the Livestock Management Facilities
21 Act. Would you agree with that?

22 A. Yes.

23 Q. And your point is that if you could
24 identify a certain area as being karst just

1 regional?

2 A. Yes.

3 Q. So -- and your point further is if you
4 have a regional -- that there should be no land
5 application of --

6 A. No, not necessarily.

7 Q. Okay. Do you want clarify it then,
8 what you mean? What is your position on land
9 application of livestock waste pursuant to a
10 nutrient management plan in a karst area?

11 A. Yeah, right. That's a good question.
12 What we have found through monitoring for
13 pesticides and nitrates, which are applied in a
14 similar non-point source application is that we
15 would have usually an undesirable number of
16 detections of pesticides and it's oftentimes
17 high concentration of nitrate if the top of the
18 aquifer was within 20 feet of land surface. And
19 that's largely due to transport through these
20 preferential paths.

21 Q. I am just asking about the --

22 A. Well, I am going to get there, and I am
23 trying to show you a basis for how I'm going to
24 answer it. Because of our observations -- and

1 then we found when the top of the aquifer is
2 between 20 to 50, there is a lower risk of
3 contamination and concentration, and when the
4 top of the aquifer is below 50, we generally
5 find that it's very rare to see contamination of
6 those kinds of things. I think -- Sam and I
7 have talked about this. The difficulty with
8 karst -- and I was alluding to that in my
9 answers to another question of the EPA, is as
10 opposed to sandstone, okay, another bedrock
11 unit, is that the flow through karst is through
12 these larger channels primarily. And they could
13 be cracked. They could be channels or conduits
14 or cave type of features, and what that means is
15 that the water -- if there is an outlet, water
16 flows really fast, okay, and so that will allow
17 you to take water out of the material above it
18 as fast as it can be provided. In things like
19 sandstone, the water isn't flowing as fast, and
20 the rapidity, the speed of the water is relevant
21 because it allows piping -- I'm getting into
22 engineering properties of soils -- of fine grain
23 materials. If you have rapid water flow, you
24 can get piping, which is kind of what's

1 happening in the limestone rock when it
2 dissolves. You can have erosion of these
3 cracks, and the soil along the crack can erode,
4 and you basically form pipes and a larger and
5 larger channel in the soil until you get a
6 collapsing there, and that has a lot to do with
7 the amount of water on the landscape, the
8 landscape surface features, the thickness of
9 material above, the limestone that's karstified,
10 the outlet availability, how often does the
11 water really -- is it unsaturated? Are all the
12 channels in this limestone open versus saturated
13 and full? So there is a lot of variables that
14 are hard to predict.

15 Q. And how would a producer figure that
16 out?

17 A. I don't think it's -- well, I mean, you
18 could do some characterization. That's where a
19 site characterization can be helpful; not to
20 identify whether there is karst or not, but to
21 look at the hydrology locally within that karst
22 aquifer. The difficulty with that is -- and
23 this is the problem that I saw -- is the step by
24 step in the site characterization at the

1 proposed Nora dairy was that if you just drill
2 into the site, the limestone, the vast majority
3 like 80 to 90 percent could be unfractured, very
4 dense limestone, but the 10 to 20 percent is the
5 opening.

6 Well, if I don't hit that opening, I
7 don't see the karstified portion of the aquifer.
8 So even if I put a well there, I can see what
9 the water is doing in the matrix part of the
10 rock, but it has potentially no bearing at all
11 to what's happening in the karstified channels.
12 And that's the problematic part.

13 And so you could identify it on a site
14 characterization basis, but you have to be
15 fortunate enough to put a well in a location
16 that intersects enough of these fractures or the
17 important fractures to be able to knowingly
18 represent the karst. That's hard to do, and a
19 farmer, an individual landowner, probably can't
20 do that reliably. A consulting firm might be
21 able to do it, and it could be very expensive.
22 Sam has done it through regional evaluations in
23 water quality and sampling of a lot of private
24 wells.

1 Q. You talk a lot about Nora, Illinois.
2 Is that what you said, in Nora, Illinois? You
3 talk about the Nora facility. So I assume you
4 are --

5 A. I don't know what it's called.

6 Q. I assume you are knowledgeable since
7 you are talking about it?

8 A. I am partially knowledgeable, to be
9 fair, because --

10 Q. Well, where is it? Because I don't
11 know.

12 A. I think the one that people have
13 referred to earlier is, what, Traditions?

14 MR. TRAINOR: It's the same.

15 BY MS. MANNING:

16 Q. Okay. Thank you.

17 A. See, I have never been there. I
18 consulted with Sam. Because of my knowledge of
19 preferential flow in tiles into aquifers, Sam
20 and I talked quite a bit, and my previous
21 testimony during the LMFA -- I think you were
22 involved with that, right?

23 Q. Right.

24 A. I'm testifying in front of the Board at

1 that point regarding different issues regarding
2 LMFA, and part of it was the karst definition,
3 and so that's what I was referring to.

4 Q. Thank you. I wasn't sure that was the
5 same site.

6 A. That's the way Sam and I -- that's how
7 I remembered it, and I couldn't remember enough
8 of the other details, because I wasn't working
9 directly on it. That was really Sam's.

10 MS. MANNING: Thank you. That's all I have
11 right now.

12 HEARING OFFICER FOX: Very good. Thank you,
13 Ms. Manning. I think we are ready to turn to
14 the Environmental Groups. Ms. Dexter, if you
15 have any follow-up questions for Mr. Keefer,
16 please go ahead.

17 CROSS-EXAMINATION

18 BY MS. DEXTER:

19 Q. Just a few. In your testimony you
20 stated that monitoring is needed to ensure waste
21 application that does not result in
22 contamination of surface waters. What sort of
23 monitoring do you think should occur and would
24 be both effective and practical?

1 A. The kind of monitoring that is
2 typically done in tiles is to create an access
3 point before the outlet so it's easy to reach;
4 that can then be used to collect the sample from
5 the tile during periods of flow, and the time
6 that you tend to see the most contamination
7 through the tiles is in the early part of
8 drainage events after -- or if it's been
9 draining for a while and within the, you know,
10 three to ten hours after. It depends on the
11 field, in the three to ten hours immediately
12 following a rainfall event of sufficient
13 intensity.

14 Q. Okay. What would you consider a large
15 enough setback from community water supply wells
16 to be protective of water supply?

17 A. From community, I didn't really have a
18 position on it. EPA has got a procedure in
19 place that I think has been protective, and I
20 didn't really -- I commented more on the large
21 diameter dug in bored wells, because those are
22 typically tying in to either thin sands, or they
23 are actually tying into this macropore network
24 and getting water out of what wouldn't otherwise

1 be -- it's basically non-aquifer clay.

2 We have a lot of glacial till in
3 Illinois, and you can put a 4-foot diameter well
4 down 60 feet and like a cistern it will seep if
5 the water table is high enough very slowly, and
6 a lot of people have water wells like that, and
7 they tend to be oftentimes highly contaminated
8 if they are close to the farm fields, and again,
9 this type of thing is something that I thought
10 was vulnerable based on what we have seen with
11 the pesticides and nitrates.

12 Q. And just to remind us, what is the
13 setback that you think is appropriate?

14 A. To be very honest, I kind of grabbed
15 that just -- not randomly, but I didn't use a
16 reference, and I mentioned 800 feet, and I --
17 what I was just trying to do is, again,
18 traditional models for predicting water flow are
19 not able to handle preferential transport
20 through macropores. So we just can't model that
21 right now. And so the kind of approach that's
22 done at the EPA for setback zones, capture zones
23 for wells is not sufficient in these shallower
24 environments in particular. And so I was just

1 trying to think about the likely capture zone
2 volumetrically of what a dug well might reach
3 to, and, you know, I think you will probably
4 find a lot of other opinions on that, but that
5 was just my feeling, that it took -- 800 feet
6 would probably be safe.

7 MS. DEXTER: Okay. That's all I have.

8 Thanks.

9 HEARING OFFICER FOX: Very good. Any
10 additional follow-up questions on the part of
11 either the Agency or the Agricultural Coalition
12 at this point?

13 MS. MANNING: No.

14 HEARING OFFICER FOX: Very good. Thanks, Ms.
15 Manning. Ms. Olson, Ms. Williams?

16 MS. WILLIAMS: No.

17 HEARING OFFICER FOX: Mr. Keefer, I have one
18 quick question to ask you. You referred at the
19 beginning of your testimony that you had
20 appeared at the request of or on behalf of the
21 Board?

22 THE WITNESS: That was my understanding.

23 HEARING OFFICER FOX: Can you --

24 THE WITNESS: I talked to Sam who said -- and

1 he testified at DeKalb and one of the Board
2 members asked if I could attend and discuss
3 macropores.

4 BOARD MEMBER RAO: Actually, I asked.

5 HEARING OFFICER FOX: Very good. I just
6 wanted to clarify that. That is my only
7 question, Mr. Keefer. So that, again, exhausts
8 the questions that your pre-filed testimony or
9 your comments today generated. Thank you for
10 your time. It's much appreciated on the part of
11 the Board.

12 That exhausts the pre-filed testimony
13 that we received, the Board received, for this
14 hearing. I want to clarify for the record,
15 first of all, whether there is any person who
16 did not pre-file testimony, but would like to
17 offer sworn testimony and be subject to
18 cross-examination here today as you have just
19 seen in the case of Mr. Keefer.

20 Does anyone wish to testify?

21 Neither seeing nor hearing any
22 indication that there is, we did accept a number
23 of public comments at the beginning of the day.
24 Is there anyone present who has not had an

1 opportunity to do so that would like to offer a
2 public comment here? At this point in our
3 hearing, neither seeing nor hearing any, I want
4 to move on quickly to the issue of the economic
5 impact statement, which we have quickly --

6 MS. MANNING: Mr. Hearing Officer?

7 HEARING OFFICER FOX: Yes, Ms. Manning.

8 MS. MANNING: I had reserved the right to
9 call Mr. Trainor back to testify in response to
10 Dr. Keefer's testimony.

11 HEARING OFFICER FOX: It appears you would
12 like to do so?

13 MS. MANNING: I can do it whenever you want,
14 I just wanted -- I didn't know if you were
15 closing the hearing, and I just wanted to remind
16 you that I had made that request.

17 HEARING OFFICER FOX: I was moving in that
18 direction, and I appreciate your reference to
19 it, and if it's appropriate --

20 MS. MANNING: Whenever. I don't mean to
21 upset your timing.

22 HEARING OFFICER FOX: No. It's perfectly
23 fine. If you would like to do that, now would
24 seem to be a very good opportunity to do it, and

1 we can have Mr. Trainor sit in the witness chair
2 once again.

3 Mr. Trainor, you have already been
4 sworn, and Ms. Manning has a question she would
5 like to ask.

6 DAVID TRAINOR,
7 having been first duly sworn, was recalled as a
8 witness and was examined and testified as
9 follows:

10 FURTHER RECROSS EXAMINATION

11 BY MS. MANNING:

12 Q. I do. First of all, Mr. Trainor, you
13 listed the testimony of -- I know you read Dr.
14 Panno's testimony. You listed Dr. Keefer's
15 testimony. You also said his testimony. Do
16 you -- could you, first of all, speak to the
17 practical experience you have on the issues that
18 they discussed, and then maybe go through some
19 of the points of their -- of the testimony, and
20 I can walk you through some of that, but
21 particularly starting with -- starting with this
22 whole -- his point on nutrient transport, could
23 you enlighten the Board, first of all, on your
24 experience on nutrient transport?

1 A. Sure. I tried to talk about this
2 before. I alluded to some concepts that deal
3 with groundwater flow and transport of
4 contaminants to the water table. The problem
5 that I see in some of this in looking at the
6 facts, the -- when you land apply waste, it's
7 going to follow an unsaturated flow path by
8 gravity until it reaches the water table. Okay.
9 That's a fact of life. Once it reaches the
10 water table, it's going to follow hydraulic --
11 the hydraulic gradient before it reaches its
12 discharge point and it's going to be subject to
13 porous medium flow. The problem that I see in
14 some of this testimony is that we are kind of
15 mixing things up when we talk about rapid
16 transport of groundwater in fractured
17 conditions.

18 Okay. First of all, we are talking
19 about macropores, however they are defined.
20 Again, I won't talk about the permanence or lack
21 thereof about them. If we are following
22 fracture flow down to the water table, it's
23 going to follow a preferential path to reach
24 that point. Once it reaches the water table,

1 it's subject to the hydraulic behavior of the
2 aquifer. It follows what's called Darcy's Law.
3 It's the permeability -- the resistance of flow
4 is based upon groundwater, which is just like
5 surface water flows from a point of high
6 pressure to low pressure, and the resistance
7 against the porous media controls that rate.

8 Okay. It's not going to be some rapid
9 movement of groundwater through some kind of
10 solution channel where it's going to cascade
11 out.

12 We talked about springs that have been
13 operating, because there is a point of recharge
14 where there is a consistent source for that
15 spring so that there is a higher point of
16 pressure that allows the water to flow by
17 gradient out through that spring. Okay.
18 Contaminants move with the groundwater at the
19 same rate.

20 If they don't follow that path, they
21 are going to be following some kind of
22 unsaturated flow condition. So there has to be
23 a continuous source of the material to cause
24 that draining. And the only way you can

1 determine a value for the rate of flow in most
2 karst conditions is to run what's called a pump
3 test. So you would have to put in a pumping
4 well and a series of observation wells and
5 measure the reaction of those observation wells
6 you pump over time from that observation well.

7 That's the only way you are going to be
8 able to determine what is the actual flow in the
9 groundwater -- in the groundwater environment.
10 It has nothing to do with flow through fractures
11 of material that is discharged to the surface,
12 which by the way is a finite source, because
13 when you discharge manure, it's not like a
14 rainstorm, a continuous rainstorm for 24 hours.
15 It's a finite amount of water that's going to be
16 discharged to the surface, and it's going to
17 basically follow the fractures or whatever
18 mechanism down to the water table and then be
19 controlled by the hydraulic behavior of the
20 aquifer.

21 Q. Thank you. There is specific
22 suggestions that Dr. Keefer made in terms of
23 rule changes that I want to go through with you
24 and sort of seek your opinion on them. The

1 first is that he has asked that the definition
2 of groundwater be changed, providing a
3 demonstration of the water level in a shallow
4 well. Could you comment on that, like what your
5 opinion would be on the necessity of doing that
6 for environmental protection in the context of
7 this rulemaking?

8 A. First of all, that is -- it's correct
9 to say that to determine the actual static water
10 level of a saturated condition, a well is
11 required. You can't determine where it is
12 otherwise. However, in trying to control -- in
13 trying to get that information for land
14 spreading would require a series of wells in the
15 area where you would land spread in order to
16 determine where the water table is. Now, that
17 would require some cost to put those well points
18 in.

19 It would also -- and I -- when we were
20 thinking about this, it also would create one
21 series of very large macropores, because that's
22 what a well is. Again, it's just a big hole in
23 the ground, a permanent conduit, but that would
24 be the only way that you would be able to get

1 the actual level of the water table if you knew
2 exactly where the water table was in order to
3 meet that requirement.

4 I think it's -- I personally believe
5 it's onerous, because the rule itself is
6 conservative. To -- and you could base that on
7 as Dr. Keefer said, for example, USDA soil
8 surveys.

9 Q. They also talked about tiles,
10 particularly Dr. Keefer talked quite a bit about
11 tiles, and suggested that in Section
12 502.106(b)(1) he would encourage consideration
13 for inclusion of subsurface drainage tiles in
14 the section requiring NPDES permitting.

15 Could you talk to us a little bit about
16 underground surface tiles in agricultural areas,
17 particularly in Illinois, and the nutrient
18 transport issues related to them as it would
19 relate in the context of this rulemaking?

20 A. My reading of the testimony and my
21 experience, of course -- and I think there were
22 some statistics that were shown about the
23 agricultural fields in Illinois are heavily
24 tiled. There was a number of 35 percent of the

1 agricultural fields in Illinois that are tiled.
2 Again, I don't know what that's based on, but
3 again, farmers over decades have been putting in
4 tile systems as Dr. Keefer says, to lower the
5 water table in order to try and shift water away
6 from the root systems.

7 My understanding of that is that if you
8 tie that into the rule about making that a
9 requirement, then the farmer would have to
10 determine exactly where his tile systems were,
11 and I would hazard a guess that farmers probably
12 don't have that information, because many of
13 those tiles were installed decades or even
14 scores ago and that there is no record of those
15 tiles. So consequently trying to develop a
16 monitoring program for those tiles in itself
17 would be difficult, to say the least.

18 Regarding Dr. Keefer's discussion about
19 the transport of contaminants through those tile
20 systems, he is correct, because research has
21 shown that is a potential conduit for
22 contaminants to be transferred. However, I
23 would like to say this. We have been land
24 spreading on these areas for decades, just like

1 the tile systems have been in place for decades,
2 and I would ask what is the record of
3 contaminants causing adverse consequences
4 because of that transfer system that's already
5 in place, and based upon the rule that's being
6 put in place, which is, I think, more protective
7 than the current conditions, I don't see any
8 sudden change unless, of course, there are
9 catastrophic failures, which could happen at any
10 time. But I don't see any change in the regard
11 for potential for contamination to be
12 transmitted per those existing tile systems any
13 more than they already have -- are in their
14 current status.

15 Q. Okay. So given that, it appears to me
16 then with his suggestion in 502.615(a)(6),
17 nutrient transport, you would not support his
18 recommendation as to the Board changing its
19 current rule?

20 A. That's correct.

21 Q. Also, he talks in -- he suggests in
22 502.620 in protocols to land applied livestock
23 waste, Subsection K, already it requires that
24 livestock waste by applied at no greater than

1 50 percent of the agronomic rate. He suggests
2 that the soil survey of the USDA be used as an
3 indicator of what the water table is. Would you
4 like to speak to that as well?

5 A. I did briefly before, but the USDA as
6 Dr. Keefer said, the soil surveys are produced
7 for counties all over the country. They rate
8 the various soil types based upon their origins.
9 They usually have in there information on
10 engineering properties, as well as the water
11 table location for seasonal high.

12 The recommendation to look at that
13 information to determine the seasonal high, I
14 don't see a problem with that, because if it --
15 you know, if it says that the seasonal high
16 water table is within two feet, then I would
17 think that the farmer would want to be able to
18 determine that himself if he wants to use that
19 particular field for land application. Like I
20 said, the only way that you are going to
21 determine where the actual water table is, is
22 through -- through actual methods.

23 Q. And going back to the discussion on
24 tiles for a minute, there was a discussion by

1 Mr. Keefer -- Dr. Keefer about the oxidation of
2 water in the tiles, at which point he spoke
3 about your prior testimony and said that it just
4 isn't true in terms of the oxidation of the
5 water. Could you speak to that point that he
6 made?

7 A. Yeah. Dr. Keefer made the comment
8 about my comment that the groundwater
9 environment is -- as a reducing environment. I
10 don't recall saying all ground water is
11 reducing, but I said, by and large, it is a
12 reducing environment. That's true.

13 There are occasions, just like any
14 other, that there can be oxic conditions in
15 groundwaters. In very fractured bedrock where
16 you have shallow bedrock near the surface, that
17 can certainly be measured. By and large, the
18 groundwater environment worldwide tends to be
19 reducing, because we use that fact in our
20 studies of contaminant transport. This is why,
21 by and large, most pathogens and most bacteria
22 that gets into the groundwater environment
23 doesn't survive. That's a fact.

24 I mean, it's just a function of the

1 fact that Dr. Keefer attested to, the reason you
2 put in a drain tile system is to reduce the
3 water level in order to allow the roots to
4 maintain their oxygen levels. Because once the
5 groundwater environment approaches, you have a
6 non-oxygenated environment. So again, I'm not
7 saying that all groundwater is reducing. I am
8 saying that the large groundwater that we have
9 on this planet is generally reducing. It's not
10 all reducing, and there can be conditions where
11 it can be oxygenating.

12 Q. And he also suggested, I think, in his
13 testimony that he questioned the value of site
14 specific evaluations in karst areas as to the
15 practicality -- or not necessarily the
16 practicality, but the viability for livestock
17 facilities. Could you speak to the whole issue
18 of a site specific evaluation for the
19 determination, A, of placing a CAFO in a
20 specific area or B, the land application of
21 waste in that area?

22 A. When it comes to siting a CAFO -- and I
23 can speak to my experience here at Nora Dairy,
24 Tradition South area or whatever name we

1 provide. And we mentioned here earlier in the
2 testimony about how the work was abandoned at
3 the site at that facility. We were actually
4 going about doing site specific karst
5 investigations at that site. To perform that
6 work, we had to do what was called a surface
7 geophysical survey of that entire area where
8 those ponds were located and the purpose of the
9 survey was to look at fracture orientations in
10 the bedrock below the proposed ponds.

11 From that information, then we had
12 to -- at the concurrence of EPA develop a work
13 plan in order to try and look at where logical
14 locations would be for putting injection wells
15 to put in tracer dyes and developed a plan to
16 look at how we would do that tracing over
17 squares miles. That in itself was a substantial
18 investment by the owner of the facility before
19 he decided to abandon it.

20 We never did those tests, largely
21 because of the fact that he was pursuing, you
22 know -- it was ratcheting up the bill for doing
23 the work. If we take the testimony that I read
24 on doing tracer studies or doing trenching to

1 evaluate site specific karst conditions, that
2 would be an extremely expensive effort. The --
3 to determine an -- I agree with Dr. Keefer,
4 karst is a region. Okay? It's a determined by,
5 you know, changes in tectonic forces and
6 weathering and erosion of geologic units.

7 But if an applicant is confronted with
8 putting a manure pond that's concrete lined or
9 steel lined versus determining if there were
10 karst features below, he is going to have to
11 make a decision on how to do that, and that's --
12 you know, in a sense, doing work to do site
13 specific -- to actually confirm karst conditions
14 would be extremely expensive.

15 Now, I would ask the question, if we
16 are doing karst evaluations for land spreading
17 to be so prohibitive that it wouldn't be worth
18 it. And again, going back to the
19 recommendations that were made by the
20 Environmental Groups to provide this 50-foot
21 separation, we would basically be eliminating
22 much of any area in the Driftless zone, which
23 occupies much of this area in northwest Illinois
24 for any land application for manure waste.

1 MS. MANNING: Thank you.

2 HEARING OFFICER FOX: Any follow-up questions
3 for Mr. Trainor?

4 Neither seeing, nor hearing any from
5 the Agency or on the part of the Environmental
6 Groups -- did I see -- Ms. Olson, I'm sorry. I
7 didn't see you hand. My apologies. Please go
8 ahead.

9 MS. OLSON: No. I thought you were moving
10 on. I'm sorry.

11 HEARING OFFICER FOX: But you have exhausted
12 your questions for Mr. Trainor? Very well.

13 Mr. Trainor, thank you once again for
14 your testimony. Did you wish to be heard before
15 we go any further on our order of proceedings?

16 MS. WILLIAMS: I'm just trying to remind you
17 that I did have one exhibit I have been carrying
18 around to all these hearings that I would like
19 to not take back home with me.

20 HEARING OFFICER FOX: This is our final
21 hearing on the calendar, Ms. Williams. If you
22 would like to describe what you have and move
23 for the admission of it into the record, I think
24 we can deal with that very quickly.

1 MS. WILLIAMS: The document I have is a
2 document that we -- it's really a replacement
3 document for Attachment F that was submitted
4 with our proposal. And what we have referred to
5 it as is Compiled CAFO Final Rule. The document
6 was an attempt by USEPA to combine the
7 regulatory language from the 2008 and 2003
8 federal rules into one document, and because
9 USEPA did another direct final rule this summer
10 amending the federal rule to address changes
11 from the National Pork Producers case, that
12 document then has been updated on their website
13 from July 30th, 2012, and we wanted the record
14 to be complete and accurate.

15 So I will defer to you whether we
16 should make it a formal exhibit.

17 HEARING OFFICER FOX: Actually, I would be
18 willing to entertain a motion, Ms. Williams, to
19 introduce this as an exhibit with the sense that
20 you would wish this to be the substitute for
21 Attachment F with your original March 1st
22 rulemaking proposal.

23 MS. WILLIAMS: So moved.

24 MS. MANNING: And we are perfectly

1 comfortable with that.

2 HEARING OFFICER FOX: No opposition obviously
3 from the Agricultural Coalition. Do the
4 Environmental Groups have a position on the
5 motion?

6 Neither seeing nor hearing any, Ms.
7 Williams, that motion will be granted. This
8 will be entered into the record as Exhibit No.
9 24 for your notes, and I will mark that, and it
10 will be so admitted.

11 MS. WILLIAMS: Thank you so much.

12 (Whereupon, Exhibit No. 24 was
13 marked for identification and
14 admitted into evidence.)

15 HEARING OFFICER FOX: Anything further on the
16 part of the Agency, or did that exhaust the --

17 MS. WILLIAMS: That's all we have.

18 HEARING OFFICER FOX: Very good. Let me
19 establish once more, I believe we have now
20 exhausted -- and thank you, Ms. Manning, for
21 reminding me of your interest in recalling Mr.
22 Trainor. We have exhausted the pre-filed
23 testimony. Let me quickly ascertain, is there
24 anyone who has not pre-filed testimony, but

1 wishes to testify today present here now, or is
2 there anyone who wishes to offer a comment who
3 has not already done so?

4 Neither seeing nor hearing any
5 indication that there is, I would like to move
6 on to the issue of the economic impact study and
7 a couple of other procedural issues before we
8 can adjourn fairly quickly. With regard to that
9 study, Section 27(b) of the Environmental
10 Protection Act provides that the Board must
11 request that the Department of Commerce and
12 Economic Opportunity or DCEO request that it
13 conduct an economic impact study of proposed
14 rules before the -- before the Board adopts
15 them.

16 The Board must then make either the
17 economic impact study or the department's
18 explanation for not conducting one available to
19 the public at least 20 days before a public
20 hearing. For the record, in a letter dated
21 March 22nd, 2012, the Board's chairman, Tom
22 Holbrook, requested that DCEO conduct a study of
23 that nature on this specific rulemaking
24 proposal, and specifically requested a response

1 by May 1st of 2012, and the Board has to date
2 received no response from DCEO.

3 Is there anyone who would like to
4 testify either regarding the Board's request or
5 DCEO's absence of a response to that request?

6 Neither seeing nor hearing any, why
7 don't we go off the record just for a moment or
8 two to address a quick couple of procedural
9 issues.

10 (Whereupon, a short break was
11 taken.)

12 HEARING OFFICER FOX: In going off the
13 record, the participants at the hearing today
14 discussed procedural issues going forward in
15 this docket. First, copies of the transcript
16 are expected to be available in the Board's
17 office by Wednesday, November 28th of 2012.
18 Once that is received by and filed with the
19 Board, it will be posted to the Board's website
20 where it can be viewed, copied and printed in
21 its entirety.

22 In discussing the issue of filing
23 post-hearing comments, the participants agreed
24 to a deadline of Wednesday, January 16th of

1 2013. On the record at a previous hearing the
2 deadline to respond to the Agriculture
3 Coalition's proposal to amend the Agency's
4 original proposal was granted. So the responses
5 to the Agricultural Coalition's proposal would
6 become due with the final post-hearing comments,
7 again, on the date of Wednesday, January 16th,
8 2013.

9 The deadline for any participants to
10 respond to those post-hearing comments, those
11 final comments due on January 16th is Wednesday,
12 January 30th of 2013, and that will also serve
13 as the deadline for any individual comments
14 generally on the proposal.

15 I do want to remind everyone that
16 filing with the Board whether paper or
17 electronic must also be served on the Hearing
18 Officer and those participants who are on the
19 service list. The service list is accessible
20 through the Board's web page, and we have
21 strived to maintain that accurately. You can
22 always check with our Board's Clerk as well in
23 person or on the telephone, if you wish to
24 confirm that you have the most recent version of

1 that list.

2 If you have any questions about
3 procedural aspects of this rulemaking, contact
4 information for me and for the Board's Clerk is
5 available on the Board's website. Are there any
6 other questions or issues to address before we
7 adjourn?

8 If we have covered them all, I
9 certainly at the conclusion of five hearings owe
10 thanks to all of you who are present. It has
11 involved a great deal of time and travel on your
12 part. It's appreciated by the Board in amassing
13 its record. We will adjourn and we certainly
14 thank you all.

15 (FURTHER DEPONENT SAITH NOT.)

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1 I, KARI WIEDENHAUPT, do hereby certify
2 that the foregoing was reported by stenographic
3 and mechanical means, which matter was held on
4 the date, and at the time and place set out on
5 the title page hereof and that the foregoing
6 constitutes a true and accurate transcript of
7 same.

8 I further certify that I am not related
9 to any of the parties, nor am I an employee of
10 or related to any of the attorneys representing
11 the parties, and I have no financial interest in
12 the outcome of this matter.

13 I have hereunder subscribed my hand on
14 the 25th day of November, 2012.

15

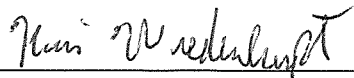
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KARI WIEDENHAUPT, CSR

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