

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
 CONCENTRATED ANIMAL FEEDING)
 OPERATIONS (CAFOS): PROPOSED)
 AMENDMENTS TO 35 ILL ADM. CODES)
 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 LORI ANN ASAUSKAS, CSR, RPR, a notary public
 within and for the County of Cook and State of
 Illinois, at the DeKalb Municipal Building,
 200 South 4th Street, DeKalb, Illinois, on the
 30th day of October, 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
(312) 814-6983

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

6 ILLINOIS POLLUTION CONTROL BOARD MEMBERS PRESENT:

7 Mr. Thomas Holbrook, Lead Board Member

8 Ms. Jennifer Burke, Board Member

9 Dr. Deanna Glosser, Board Member

10 Ms. Carrie Zalewski, Board Member

11 Mr. Anand Rao, Technical Unit

12 Ms. Alisa Liu, Technical Unit

13

14

15 ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

16 1021 North Grand Avenue East

17 P.O. Box 19276

18 Springfield, Illinois 62794-9276

19 (217) 782-5544

20 BY: MS. JOANNE M. OLSON and

21 MS. DEBORAH J. WILLIAMS,

22

23 Appeared on behalf of the Petitioner;

24

25 BROWN, HAY & STEPHENS, LLP,

26 700 First Mercantile Bank Building

27 205 South Fifth Street

28 P.O. Box 2459

29 Springfield, Illinois 62705-2459

30 (217) 544-8491

31 BY: MS. CLAIRE A. MANNING,

32 Appeared on behalf of the Agricultural
33 Coalition.

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

ENVIRONMENTAL LAW AND POLICY CENTER,
35 East Wacker Drive
Suite 1600
Chicago, Illinois 60601
(773) 818--4825
BY: JESSICA DEXTER,

and

DIAMOND & LeSUER, P.C.,
3431 West Elm Street
McHenry, Illinois 60050
(815) 385-6840
BY: MS. DANIELLE DIAMOND,

Appeared on behalf of Environmental Groups;

ALSO PRESENT:

KIM KNOWLES
1902 FOX DRIVE, SUITE G
CHAMPAIGN, Illinois 61820
(217) 344-2371

Appeared on behalf of Prairie Rivers
Network.

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

10 I want to take a moment to
11 introduce those folks who are present here this
12 morning from the Board. At my immediate left
13 is the Board's chairman, Tom Holbrook, who is
14 the lead Board member in this proceeding. At his
15 left is Board member Jennifer Burke. Starting
16 at the far -- my far right end of this head table
17 is Board member Carrie Zalewski. And moving closer
18 to the center is Board member Dr. Deanna Glosser.
19 From the Board's technical unit present this
20 morning at my immediate right, Anand Rao and at
21 my far left, Alisa Liu.

22 The Illinois -- by way of
23 background, the Illinois Environmental Protection
24 Agency filed this rulemaking proposal on March 1st

1 of 2012 and in an order dated March 15th of
2 2012, the Board accepted the proposal for
3 hearing.

4 The first hearing in the
5 docket took place on August 21, 2012, in
6 Springfield. The second hearing took place
7 in Belleville on October 16, 2012. And the
8 third hearing took place last week in Urbana
9 on October 23, 2012.

10 A Hearing Officer Order set
11 October 16th is the deadline to pre-file testimony
12 for this fourth hearing. The Board has received
13 pre-filed testimony from this -- for this hearing
14 from Mr. Samuel Panno, who did submit amended
15 testimony and also on behalf of the environmental
16 groups from Mr. Arnold Leder, Dr. Stacy James,
17 and Dr. Kendall Thu, all four of whom are present
18 and will be sworn in to testify and respond to
19 questions in due time.

20 What we will do is begin this
21 hearing with comments. Nine persons have signed
22 in indicating that they wish to offer a brief
23 public comment and our first order of business
24 will be to go through those nine persons so that

1 their comments can be submitted into the record.

2 We will then, at the conclusion
3 at the final comments, begin with the pre-filed
4 testimony of Mr. Panno.

5 Based on the supplements,
6 the amendments he has filed, we will ask him to
7 read that into the record in its entirety as it
8 was amended in his second filing. And at the
9 conclusion of that, we will make him available
10 for questions from the other participants here
11 today; first, the questions from the Agricultural
12 Coalition and then from the Environmental Protection
13 Agency, with follow-ups on the part of anyone else
14 who wishes to pose one.

15 At the conclusion of that
16 testimony and the questions that are based upon
17 it, we will turn to the three witnesses, the
18 pre-filed testimony on behalf of the environmental
19 groups. It would make the most sense to swear
20 them in together to take questions as a panel so
21 that they are all prepared to respond from the
22 start.

23 We will go after a summary or
24 a brief statement on the part of the environmental

1 groups. We will turn to follow-up questions
2 from the Agricultural Coalition with follow-ups
3 also from the other participants and then turn
4 to any questions that the Environmental Protection
5 Agency may have.

6 I do want to note for the
7 record I had left open at the entrance to the
8 room a sheet on which anyone could indicate
9 that they wished to testify. The only four
10 persons who had signed that were the four persons
11 who had pre-filed their testimony so that we do
12 not apparently have anyone wishing to testify
13 who did not pre-file that testimony.

14 I will in a moment put that
15 back on the table to the entrance of the room
16 so anyone could so indicate if they wish.

17 I do want to note generally
18 before we move on that this proceeding is
19 governed by the Board's procedural rules under
20 Section 104.426 of those rules. All information
21 that is relevant and that is not repetitious or
22 privileged will be admitted into the record of
23 this proceeding.

24 I will ask you to note please

1 that any questions posed today by the Board
2 members or by the Board staff are intended
3 solely to clarify and complete the record and
4 reflect no predetermination on the merits of
5 the proposal or any motion to amend or supplement
6 it.

7 I do ask for the benefit of
8 our court reporter that you speak clearly. The
9 microphones throughout this room are live and
10 you can speak into them. I ask that you bear
11 in mind that they are not particularly sensitive
12 and that you should pull them close to your face
13 so that we get the benefit of that amplification and
14 you can be heard throughout
15 the room.

16 I would also ask you not to
17 speak at the same time as any other person so
18 that her task in compiling the record is as
19 simple as possible.

20 Before we begin the comments,
21 are there any questions about our order of hearing
22 or any other procedural issues?

23 Very good. I have a microphone
24 here, which I will take out into the audience.

1 I think in the interest of time, we can have
2 the commenters pass it one to the other as long
3 as, I said, you do hold it close to your face you
4 will be heard, I think, very clearly throughout
5 the room.

6 The comments, I would ask you
7 to limit to a duration of three minutes so that
8 we can be sure to accommodate everyone who wishes
9 to offer one.

10 With that, Mr. Howard Hudson
11 is present, I know, and I will turn the microphone
12 over to him to begin a three-minute commentary.

13 MR. HUDSON: My name is Howard Hudson.
14 I'm a fourth generation farmer from Elmwood,
15 Illinois. I was previously a Board president of
16 the Ag Co-Ops for approximately 25 years and I
17 would -- and I also raised hogs and cattle until
18 1989. Now, I'm currently involved in crop
19 production only.

20 I'm going to ask the Board to
21 please adopt the additional regulations. The
22 abomination that's been going on in the countryside
23 of my rural neighbors, farmers included, with these
24 large livestock operations needs to be squelched.

1 The sizes have grown. If they are going to stay
2 in the large size capacity production, we need
3 to have stronger laws to protect the air and the
4 drinking water of our neighbors. That's all I
5 would like to comment on. Thank you.

6 HEARING OFFICER FOX: Mr. Hudson,
7 thank you very much.

8 Ms. Susan Turner is the next
9 commenter. I believe she is right to your left --
10 to your right, rather.

11 MS. TURNER: My name is Susan Turner
12 and I'm a wife, mother of five, and a homeowner
13 from northwest Illinois where there are beautiful
14 hills and rocky terrain known as karst topography.

15 Because of the drought during
16 the last summer, cracks, fissures and pronounced
17 crevices are wider now than ever. The ground is
18 eager to accept the rain and the liquid wastes
19 that run off concentrated animal feeding operations.
20 The pollution can travel from a facility as well
21 as the farmland that liquid manure gets applied
22 to. Manure in solid form and in its proper ratio
23 is not that much of a concern.

24 It is when manure is in liquid

1 form and in an excess due to head size that I am
2 concerned about pollution discharges to the aquifer
3 that is so shallow and accessible in my area.

4 Because pollution knows no
5 boundaries, pollution can change everything.
6 Realistically, discharges, spills and accidents
7 with manure and water are a form of trespass.
8 An overabundance of these nutrients do not stop
9 at the edge of a neighbor's property. Pollution
10 does not stop at a township, county or state
11 line.

12 We should not be expected to
13 compromise our property values, rural way of life,
14 hold our breath or drink bad water to accommodate
15 business decisions over community well being.

16 Discharging with or without
17 permit does not make it okay. To pretend that
18 an industrial size facility is a zero discharge
19 facility is not okay. It is the scale of large
20 scale industrial animal feeding operations, the
21 concentration of mass quantities of manure, silage
22 leachate and other wastes produced in one location
23 that makes this a crime against nature. It's
24 not a question of if a CAFO will discharge, but when

1 it will discharge.

2 To date, regulators have failed
3 to prevent their pollution. Many are capable of
4 generating more waste than some cities. How can
5 the Illinois EPA regulate these facilities when
6 it doesn't even know where they are located.
7 Pollution on a large scale has occurred because
8 the Agency doesn't have accurate information on
9 CAFOs.

10 It's a catch me if you can system
11 that allows water pollution to go unchecked.
12 Because I live in a rural community, I have become
13 aware of pollution and some abusive or irresponsible
14 practices that have allowed me to form my beliefs
15 and understandings.

16 Also, just recently I found a flow
17 chart designed by PEW that depicts the dysfunction
18 of the regulation system that the average citizen
19 might think they are protected by.

20 2008 was a big year for CAFO
21 related fish kills in Illinois. There were eight.
22 Would you consider a ten-mile fish kill a crime?
23 The blame? Legal process and unpaid fines that
24 go on for years. A ten-mile fish kill in the

1 Sangamon River in McLean County from 2010 is
2 still in dispute.

3 As I understand it, regulators
4 have not been able to identify, charge, convict,
5 or fine the operation that caused so much damage
6 although a CAFO upstream was suspect.

7 The facility near my home was
8 claimed to be zero discharge and went through
9 the required Illinois Department of Agriculture
10 approvals for construction. It took a stream
11 turning bright purple by that CAFO to finally
12 get the attention of the IEPA. This happened
13 even though previous discharges were witnessed
14 and documented by area residents to no avail.

15 I consider it an agronomic
16 irresponsibility to spread 320,000 gallons of
17 silage leachate on just five acres. I watched
18 as applications had been made, even on the snowy
19 frozen ground leading up to the purple discharge
20 that occurred the following October after three
21 weeks of no rain. The discharge occurred because
22 of a worker dumping leachate on the same five
23 acres from a hold pond that mysteriously kept
24 overflowing.

1 This discharge happened likely
2 because of the karst aquifer underlying the field
3 feeding into the headwaters of a tributary of the
4 Apple River, which leads to the beautiful pristine
5 Apple Canyon State Park. The Apple River is prized
6 as one of the state's most biologically significant
7 streams and its renowned small mouth bass fishery
8 that draws anglers from all over the region.

9 This place is a jewel that
10 hundreds visit monthly as a destination that
11 embraces ECO tourism recognized by Governor Pat
12 Quinn. Still no charges or fines paid yet for
13 the violation and that just stinks.

14 The Pollution Control Board needs
15 to enact regulation requiring basic information to
16 be submitted by all CAFOs to the IEPA. This would
17 provide valuable information to narrow the focus
18 of investigations and would help ensure laws are
19 upheld.

20 Without this, violations could
21 continue to go undetected and unpunished. It
22 can't be assumed that a facility that meets LMFA
23 requirements will be operated so that it won't
24 discharge. All large CAFOs should be required to

1 follow more stringent standards, permit or not.

2 As I said, it's not if a CAFO
3 will discharge, it's when it will discharge.
4 Requiring NPDES permits and imposing stricter
5 nutrient management standards after CAFOs
6 discharge will do nothing to improve CAFO
7 regulations in Illinois.

8 HEARING OFFICER FOX: Ms. Turner,
9 that ends your comment, I assume?

10 MS. TURNER: Yes.

11 HEARING OFFICER FOX: If I may ask
12 you, the next commenter is Mr. Nelson, and if you
13 would turn the microphone over to him, I'm sure
14 he will meet you to pick it up.

15 Mr. Nelson, please go ahead.

16 MR. NELSON: My name is Philip Nelson
17 and I'm a farmer from Seneca, Illinois. Along with
18 my wife, Carmen, and our kids, Kendall and Rachael,
19 we operate a fourth generation family farm in
20 LaSalle County.

21 We raise corn, soybeans and
22 alfalfa. We have a cattle operation and operated
23 our hog operation until just about a year ago.

24 I also served as president at

1 the Illinois Farm Bureau. The Illinois Farm
2 Bureau is the largest ag general farm organization
3 representing two-thirds of all the farmers in
4 our state.

5 Livestock is very important to
6 Illinois Farm Bureau and all of agricultural,
7 which is why I appreciate the opportunity to
8 comment on the proposed rule.

9 I want to thank you, the
10 members of the Pollution Control Board and the
11 Hearing Officer, for taking these comments.

12 As I mentioned, I operate a
13 small cattle operation until recently, a hog
14 operation on our farm. As a livestock farmer,
15 I worked hard advancing our farm in a responsible
16 manner.

17 Manure has been an important
18 source of fertilizer for our crops on our farm,
19 which is why I work to manage it responsibly.
20 We test our soils prior to applying nutrients
21 so we know the proper amounts to apply. Liquid
22 manure was injected into the soil so that
23 nutrients were readily available for our crops.

24 I also utilized conservation

1 practices on our farm to protect our natural
2 resources. For example, I established grass
3 waterways that we established to help reduce
4 erosions and protect water quality.

5 The practices that we utilize
6 in our farming operation are not unique. Livestock
7 farmers around this state use responsible management
8 practices on their farms as well. Farmers want
9 to responsibly manage their farms, protect natural
10 resources, and raise food for our families and
11 for yours.

12 In order for livestock farms to
13 continue to be viable in Illinois, the proposed
14 rule you are considering must be consistent with
15 other regulations. Establishing regulations for
16 farmers that unnecessarily duplicate existing
17 regulations or are inconsistent will create
18 confusion.

19 The Livestock Management
20 Facilities Act is the law established by the
21 General Assembly to regulate the siting and
22 pollution prevention standards for livestock
23 farms. The proposed rule you are considering
24 needs to align itself with the LMFA.

1 For example, if citing regulations
2 or manure application regulations differ between
3 the LMFA and the proposed rule, it will create
4 confusion for farmers who already operate under
5 the LMFA. Duplicating existing regulations
6 also creates confusion and adds to the cost
7 of compliance, but does not improve or protect
8 our resources.

9 Waste management plans that
10 farmers already have in place should be recognized
11 as a way to demonstrate proper nutrient management
12 allowing the farmer to claim that the ag storm water
13 exemption offered by the Federal Clean Water Act.
14 Establishing a rule consistent with other
15 regulations farmers face will not only help us
16 protect our resources, but allow our livestock
17 sector to continue to operate.

18 Livestock farmers are very
19 important as a part of our economy in Illinois.
20 They are the largest consumers of grain. The
21 inputs and services required by livestock farms
22 represents \$27 billion of economic activity for
23 the Illinois economy.

24 It's very important to all

1 farmers in Illinois that the rule that you
2 establish is consistent with other regulations,
3 that it is reasonable, and that it is economically
4 feasible. This will not only provide protection
5 for our natural resources, but also allow livestock
6 farms to continue to be an important economic
7 engine for our economy.

8 Thank you for the opportunity to
9 comment.

10 HEARING OFFICER FOX: Mr. Nelson, thank
11 you.

12 Mr. Block is our next commenter
13 and I recall that he is right there near you.

14 Mr. Block, please go ahead with
15 your comment.

16 MR. BLOCK: Good morning. My name is
17 Doug Block. I would like to thank the Pollution
18 Control Board for holding these hearings and for
19 the opportunity to comment.

20 I'm a fifth generation dairy
21 farmer from Pearl City, Illinois. I have lived
22 in that area for my entire life. My brother,
23 Tom, and I own Hunter Haven Farms and we are dairy
24 farmers today. We're milking 835 cows. I came

1 from the farm this morning. We're milking three
2 times a day.

3 Our farm has had livestock on
4 it for more than 100 years. During that time,
5 Lake Carroll had been developed, which is a
6 community of homes surrounding a manmade lake.
7 To my brother and I, it's important to be
8 regarded by the people who live close to us
9 as good neighbors.

10 We take our role as producers
11 of milk very seriously and have invested in
12 technology, management and dedicated employees
13 to ensure our operation has minimal impact to
14 our neighbors. In fact, many have been to
15 our farm and visited as we maintain an open
16 door policy and we encourage community groups,
17 school children and other dairymen to take
18 tours of our facilities.

19 Tom and I work with professionals
20 in developing a comprehensive nutrient management
21 plan for our farm. We take soil samples, analyze
22 nutrients and perform multiple calculations to
23 ensure we are applying manure at the proper rate
24 and in the appropriate manner. This plan,

1 which is continually updated, costs our farm
2 over several thousand dollars to develop every
3 year.

4 This past year, over 80 percent
5 of our fertilizer for the 1,800 acres that we
6 farm our crops actually came from the manure
7 from our dairy cows and we think that recycling
8 is tremendously important and to us, it's not
9 waste management, it's an asset in developing
10 and utilizing that manure correctly.

11 On our farm, we have also
12 invested in two electricity generation sets,
13 which run on methane gas generated from cows'
14 manure. This technology, though quite expensive,
15 has been very beneficial in minimizing odor
16 and making our manure application more efficient.

17 Dairy farming is an important
18 business in Illinois and as I'm preparing my
19 books for the year-end taxes this past year,
20 I noticed that 80 percent of the checks that
21 I wrote out from our dairy farm, and even though
22 it is a larger scale for northern Illinois, 80
23 percent of those checks went within a 40-mile
24 radius of our farm in Pearl City.

1 Agriculture is the number
2 one economic driver in Illinois and we need to
3 make certain that the regulations in agricultural
4 must meet and stay with it in common sense and
5 do not add an undue burden to a cost of our
6 livelihood. Thank you.

7 HEARING OFFICER FOX: Mr. Block,
8 thank you for your comment. Mr. Deutsch is the
9 next one who is right there at your right, of
10 course.

11 Mr. Deutsch, please go ahead
12 with your comments.

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

17 My name is William Deutsch
18 and I'm a lifelong dairy farmer in Sycamore,
19 right here in DeKalb County. My brother, Pat,
20 and I own a dairy farm where we milk 140 cows
21 twice a day. Our farm has had livestock on it
22 for more 80 years.

23 As a dairy farm, I live in
24 the same -- I live on the same farm as my

1 cattle. I drink from the same well.

2 Environmental responsibility
3 is a very high priority on my list. That's
4 because I do not want to harm myself, my family
5 or my neighbors. This farm has been in
6 my family for more than four generations. God
7 willing, it will go onto the next generation
8 and my son will be the fifth.

9 We in agricultural hold a
10 zero discharge standard. We work to ensure
11 no manure leaves the farm unless it is applied
12 in a controlled, deliberate manner. We must
13 completely contain our manure in a structure,
14 whether it be concrete or urban, and then
15 apply it to the field according to crop's needs.

16 In my lifetime, I have seen
17 manure go from a nuisance or a waste to a very
18 valuable commodity. It has become a valuable
19 asset for my farm as well as the farm neighbors
20 around me. We improve the soil by adding organic
21 matter and essential nutrients replacing those
22 nutrients we removing from chopping silage and
23 harvesting our corn. It is all part of a cycle
24 of nature. One practice compliments another.

1 As the Pollution Control Board
2 considers these proposal changes to regulations,
3 please keep in mind that over regulation and heavy
4 handedness on the part of government could add to
5 the cost of my family's dairy operation. A cost
6 that may place a financial burden on our farm
7 and that could cause me to make some very tough
8 choices.

9 Thank you once again for
10 the opportunity to visit with you this morning.

11 HEARING OFFICER FOX: Mr. Deutsch,
12 thank you for your comments. The next commenter
13 is Ms. Hudson, who is over here in the front row,
14 if I may ask your help in handing the microphone
15 off to her, please.

16 MR. DEUTSCH: Sure.

17 MS. HUDSON: Can I put my papers up
18 here?

19 HEARING OFFICER FOX: Absolutely.

20 MS. HUDSON: Thank you.

21 HEARING OFFICER FOX: Ms. Hudson,
22 Mr. Deutsch has the microphone for you. He's
23 bringing it to you.

24 MS. HUDSON: My name is Karen

1 Hudson. I'm a farmer in Peoria County, Illinois.
2 I'm a cofounder of Illinois Citizens for Clean
3 Air and Water and we represent about 30 counties
4 all over the state and I work nationally for
5 Socially Responsible Agricultural Project.

6 I support livestock in Illinois.
7 I'm a meat eater and I believe that we need to
8 do more in livestock states. However, I think
9 we need to have rules that match our growth and
10 currently, we do not.

11 About five years ago on a
12 November night, I received a phone call -- a very
13 surprising phone call from Region 5 EPA and they
14 said is this Families Against Rule Messes? And
15 I said, yes. And they said, do you have any idea
16 where the CAFOs are in Illinois? I said, I thought
17 you knew that. And they said, no, we don't. We're
18 trying to get this all together and we thought the
19 citizens groups would be able to help us.

20 That's just a short snippet
21 of how much trouble we're in as far as inventory
22 of farms in the area large and small.

23 On Veteran's Day Eve, I received
24 an anonymous phone call saying that we needed

1 to go down and look at a creek in Peoria County.
2 We had the largest dairy at that time, which is
3 the Inwood Dairy. We saw foam up to two feet deep
4 and took water samples of our own and found 81,000
5 units of fecal coliform per hundred millimeters.
6 Two hundred is a safe amount. Anything over that is
7 dangerous to the touch.

8 Now, we called EPA. It was
9 Veteran's Day. We got no one to come out and
10 help us, but I do have photos and documentation
11 for that.

12 On 911, I documented
13 over-application and spill on the property after
14 another anonymous phone call from another business
15 in
16 the area at that time.

17 The largest is deliberate
18 release of manure in the state of Illinois was
19 from Inwood Dairy. We used photographs. We got
20 a complaint. We got photographs of this and Lisa
21 Madigan asked to use our photographs to convict
22 this facility. There was a \$50,000 fine and the
23 Department of Justice also filed suit, and my
24 neighbor is now a convicted felon. It should

1 not have had to go that far. I believe that he
2 was also a victim because our rules are not being
3 followed and are not taken seriously enough.

4 We saw numerous over-application
5 of manure in Peoria County so badly, near the well
6 head of a property that family was so sick, they
7 visited the hospital for tests, their pets were
8 sick. When Fulton County tested their well, they
9 found such high levels of fecal coliform in their
10 water, they were told not to even bathe in their
11 water. That's again Inwood Dairy.

12 Stone Ridge Dairy, which is now
13 the poster child for U of I and the largest dairy
14 in the state, we drove past it after a presentation
15 in Indiana and found leachates in the surface
16 waters leading directly from the dairy. I have
17 documentation of that. I called that into EPA
18 and I will provide that as well.

19 They were not covering their
20 silage pile and had no berm around their silage
21 pile. This is supposed to be an operation that
22 U of I students go to and see how farming should
23 be done.

24 The list that I have -- you're

1 probably going to hear by some of the folks that
2 are planning on testifying, we need a register on
3 CAFOs, period. Right now, the EPA is trying to
4 get a handle on this. It's going to save time
5 and money and also help the ag industry if they
6 voluntarily register their facilities.

7 They need to file waste
8 management plans. I have been to county board
9 hearings where county boards have no idea what
10 the waste management plan is and yet they are
11 suppose to do a non-binding vote of how this
12 will fit into their community.

13 Waste management plans will
14 show where this is going to be applied within
15 the community. Withheld information does not
16 allow the county boards to make a decision
17 with confidence.

18 We need increased setbacks.
19 As I said, we had an issue here in Elmwood where
20 they applied less than 200 feet of a well head
21 resulting in a contamination. We also had about
22 a 50 to 150,000 abandoned wells. That's just
23 an estimate. That's another reason why we need
24 to file a waste management plan because those

1 abandoned wells are on properties and people
2 don't even realize it.

3 I also agree that stringent
4 rules should be enforced regarding manure
5 application during windy periods. The hog
6 operation in Williamsville, Illinois is a large
7 operation. I have seen them distributing their
8 waste in 30 to 40-mile-an-hour winds and I have
9 videos of a neighbor of this facility driving
10 down the road with his windshield wipers on
11 smearing hog urine and effluent on his windows.

12 We need to have something to
13 protect our surface waters as far as application
14 and also this facility has caused a fish kill
15 in over-applying their waste.

16 That's about it for now, but
17 I'd like to close and say that Mr. James
18 Kammueler of the Peoria region of EPA once
19 wrote a letter to Woodford County saying that
20 although they would follow the LMFA, there would
21 still be problems because of the way it is written
22 and it was sort of a warning that we have to be
23 really careful. You can follow all of the rules
24 and you can still have problems with the neighbors.

1 When the Ryan administration
2 found out about this, his superior forced
3 Mr. KammueUler, a longtime EPA official, to
4 apologize to these producers and he
5 was just stating what was true. And if you read
6 behind the words, we means that we need to change
7 a lot of things.

8 I have more testimony here.
9 I would also like to enter what I'm showing you
10 into the record. My photographs are in this
11 book. I have several of them. It's Peoria
12 County, Illinois photographs.

13 I also have some information
14 on antibiotic resistance, which has become a
15 huge problem in waterways, especially for this
16 water. I have all the research and footnotes
17 at the end to back that up.

18 I think that's about it. Thank
19 you very much.

20 HEARING OFFICER FOX: Very good. The
21 next commenter is Mr. Sheehan, who is sitting in
22 the middle aisle. Ms. Hudson, if you would hand
23 the microphone to him, I would greatly appreciate
24 it and we can move on to the next comment.

1 Mr. Sheehan, please go ahead
2 whenever you're ready. You're here on behalf
3 of Representative Pritchard, I understand.

4 MR. SHEEHAN: Thank you. My name is
5 Jeff Sheehan. I appreciate the opportunity to be
6 able to read Representative Pritchard's comments
7 into the record.

8 Dear Members of the Board: Let
9 me begin by expressing appreciation to the Board
10 for holding one of its hearings on Concentrated
11 Animal Feeding Operation Rule Amendments in DeKalb.
12 I regret that I could not be present to welcome
13 you to the heart of my legislative district, but
14 appreciate this format to offer comments on the
15 proposed amendments for your consideration.

16 As you can tell from traveling
17 here, the area is a mix of rural and urban with
18 agriculture and specifically livestock production,
19 play an important role in the local economy. DeKalb
20 County is a leading producer of hogs and cattle in
21 the state and farmers have been innovators in animal
22 husbandry as well as responsible stewards of the
23 land for well over 100 years.

24 The county Farm Bureau was formed

1 in 1912 to assist farmers with the adoption of the
2 latest technology and soil improvement techniques.
3 The farms are operated by families who for
4 generations have made their living from the land
5 and have a vested economic interest in good
6 stewardship, conservation and the best farming
7 practices.

8 The DeKalb County Board has
9 made persistent and conscientious decisions to
10 protect farmland from urban sprawl and to
11 perpetuate favorable coexistence among non-farmers
12 and farming operations. It is a stated public
13 policy to protect open space, responsible farming
14 practices and conservation of land and water
15 resources.

16 As a native of this area and
17 the fifth generation of farmers in DeKalb County,
18 I, too, have a vested interest in good farming
19 practices, preserving the land and protecting
20 the water quality, which sustains life for humans,
21 plants and animals.

22 It is with this perspective
23 that I share comments on behalf of the residents
24 of the region regarding regulations on animal

1 production and responsible farming practices.

2 I compliment those involved
3 in developing these proposed rules for their
4 concerns for maintaining clean water and air.
5 Their responsiveness to suggestions from the
6 agricultural industry and their efforts to create
7 fair regulations. This process has been one
8 of give and take with all parties, respect for
9 the viewpoints of diverse groups and the writing
10 of proposed rules based upon sound science.

11 These proposed rules should
12 mirror federal CAFO rules and avoid duplicative
13 or conflicting regulation. It is critical that
14 regulations be reasonable, fair and clear so
15 that livestock producers can comply with the
16 intent of the law while continuing to use
17 best practices and make an economic living.

18 As Illinois suffers from the
19 national economic downturn and its businesses
20 struggle to remain profitable, employ workers
21 and compete in an international marketplace,
22 our regulations must be fair, affordable and
23 not unnecessarily add to the cost of doing
24 business in our state. The proposed rules

1 are a step in that direction.

2 Again, thank you for your
3 efforts to protect our environment, consider the
4 various interests in this issue and develop rules
5 that are reasonable and affordable for livestock
6 producers. Sincerely, Robert W. Pritchard.

7 HEARING OFFICER FOX: Mr. Sheehan,
8 thank you for the comment on behalf of
9 Representative Pritchard. Mr. Alschuler is the
10 commenter. I believe he is the next right there
11 to your left.

12 Mr. Alschuler, please go ahead
13 when you're ready with your comment.

14 MR. ALSCHULER: My name is Matthew
15 Alschuler. I'm president of HOMES. We're a
16 nonprofit group located in Jo Daviess County.
17 We were formed by the residential farmers to
18 educate the public as to the dangers of industrial
19 scale agricultural.

20 One of our members was unable
21 to make it today and I'd like to read her statement
22 into the record.

23 My name is Beverly McPhillips
24 and in 2008, while I was the mayor of the village

1 of Winslow, Illinois, I learned about a proposed
2 large-scale industrial mega-dairy in northwestern
3 Illinois.

4 Winslow has two natural features
5 that enrich our residents and attract tourists.
6 First is the Pecatonica River, which flows through
7 town on its way up into Wisconsin.

8 Second is our natural artesian
9 spring that for decades has provided all of the
10 village's domestic water while attracting visitors
11 from miles away who come to town just to fill up
12 their containers with pure drinking water.

13 I was warned by knowledgeable
14 scientists that our domestic water supply provided
15 by the artesian spring and even the Pecatonica
16 River were all at risk should this facility be
17 allowed to become operational and land apply the
18 hundreds of millions of manure that would be
19 generated by facilities of this size.

20 I was informed that the geology
21 of our area would allow this land applied waste to
22 get into our groundwater and easily wash into the
23 Pecatonica River.

24 I was dismayed that the Illinois

1 Department of Agriculture interpreted the LMFA to
2 allow a facility of this magnitude to be built in an
3 area that experts said should be off limits due to
4 our easily contaminated water supply.

5 As the mayor of Winslow, I felt
6 it was my civic duty to protect my village's
7 valuable natural resources and oppose this facility.
8 If a village the size of Winslow lost its domestic
9 water supply, the economic fallout would have been
10 devastating, far exceeding any minimal financial
11 advantages that this facility alleged to provide
12 to our county.

13 What was even more disconcerting
14 was that the Illinois EPA interpreted its
15 regulations such that they would not step in until
16 after the facility polluted. What I learned about
17 Illinois regulatory system was that even in cases
18 where a CAFO is poorly sited and is a disaster
19 waiting to happen, nothing will be done to prevent
20 a disaster until after the fact.

21 We sent the Illinois EPA
22 information and reports written by regional and
23 state experts, but the agency told us they would
24 only get involved after the facility was completed

1 and only after it discharged. This reply from the
2 state agency charged with protecting our water was
3 baffling to me.

4 I urge the Board to strengthen
5 current regulations and to follow guidelines put
6 forth by experts that properly define karst areas,
7 such as those found in the driftless region of
8 northwest Illinois and require greater siting and
9 land application area setbacks from drinking water
10 supply wells and surface waters, rivers, streams
11 and sensitive geologic features such as karst
12 areas.

13 All large-scale confinement
14 operations should be required to follow the same
15 Clean Water Act protection standards and the
16 Illinois EPA should be compelled to ensure that
17 they are all following those standards before
18 they pollute, not after the fact.

19 The IPCB needs to give the IEPA
20 the authority and the motivation to protect our
21 environment so that other communities and
22 individuals don't have to endure the long and
23 expensive battle we were forced to take on just
24 to protect a resource as vital and primary as

1 our water. Our families, our communities, and
2 our traditional family farmers deserve that
3 protection and are counting on you.

4 Thank you, Beverly McPhillips,
5 Mayor of Winslow from 2005 to 2008 and village board
6 members for over 25 years.

7 HEARING OFFICER FOX: Mr. Alschuler,
8 thank you for that comment. The final comment is
9 Mr. Sterling, who I believe is right there in your
10 vicinity. If you would hand the microphone over
11 to him.

12 Mr. Sterling, please begin your
13 comment when you are ready.

14 MR. STERLING: Okay. Thank you
15 for allowing me to speak today. I actually had
16 something prepared a little longer than three
17 minutes so if it seems a little choppy,
18 I apologize for that.

19 For the record, I would like
20 to state my name, Eric Anthony Sterling. I'm
21 currently a senior anthropology student at
22 Northern Illinois University. I worked as
23 a union carpenter for 17 years before I
24 came back to school to study anthropology.

1 I had a vision of how I would
2 be traveling to faraway lands to learn from --
3 to help improve the lives of impoverished citizens
4 throughout the world. I never dreamed I would
5 learn how broken our system is right here in
6 Illinois and how the public is not protected
7 by these policies.

8 I have learned that right
9 here in Illinois, people are being impacted by
10 the state of Illinois through environmental
11 pollution from industrial livestock facilities.
12 Rural residents of Illinois are telling stories
13 that reflect those experiences from my
14 anthropological studies of underprivileged,
15 faraway people cultures.

16 They come from counties spread
17 out all over the state telling gut-wrenching,
18 emotional stories and the ICCAW is their shoulder
19 to cry on. Stories of Goliath versus David,
20 horrendous environmental conditions and the
21 disruption of their communities are the theme.
22 Sometimes I have to fight back the tears myself
23 and then I become inspired by the courage and
24 want to do all I can do to represent them in

1 their plight.

2 I have learned that more often
3 than not, politics and corporate profits trump
4 common decency and respect. We have the laws
5 and representations such as the Clean Water Act
6 that are only minimally imposed on polluters.
7 The public's interest and clean air and water
8 is not being protected by the regulatory system.

9 I found out that gathering
10 information about CAFOs can be extremely difficult.
11 What is their address? Who is the opener or the
12 agent, integrator, supplier, operator, et cetera?
13 What are their land application plans? Limited
14 liability companies doing business as Highland,
15 Timberland, Great Rivers, et cetera, using wholesome
16 names to quote the CAFOs business.

17 In fact, it's nearly impossible
18 to figure out who really owns and operates many
19 of these facilities unless they end up in court
20 because LLCs don't have to report to the secretary
21 of state who owns the company.

22 During my time as a carpenter, I
23 learned many lessons and some little tricks of
24 the trade and many other things about common

1 sense.

2 Doing research on location of
3 CAFOs in Illinois in close proximity near waters,
4 it doesn't take much to connect the dots. The
5 rivers and streams that are speckled with CAFOs
6 are highly impaired with the very same pollutants
7 CAFOs are known for.

8 Another discerning thing I
9 found in my research was a significant loophole
10 in the law that allows large operations to escape
11 regulation by entirely establishing several adjacent
12 facilities, frame them out on back roads, out of
13 sight, out of mind, of any regulatory requirements.

14 Provision making is possible
15 under Livestock Management Facilities Act state
16 that a factory that farm's multiple sites can be
17 considered separate facilities so long as they are
18 one-quarter mile apart or use separate waste
19 storage facilities at each site. Most CAFOs don't
20 ever have to submit their waste management plans to
21 the Department of Agriculture or the Illinois EPA
22 review for approval.

23 How would anyone know they are all
24 combining the waste surrounding land since each one

1 is treated separately. I would suspect no one
2 cross-referencing their nutrients management plans.

3 If you look at the map here that
4 Kim is holding of the Tanner Corporation facility,
5 it has multiple buildings and lagoons probably just
6 about one quarter of a mile apart. Apple Creek is
7 highly impaired with fecal coliform.

8 This is actually probably about
9 35,000 to 40,000 pigs living within about a mile
10 from each other, two miles from each other.
11 Actually, you can see from this one, I'm just going
12 to point to it really fast, you can see that one
13 CAFO is draining right into the water.

14 I'd like to conclude by saying
15 that my partner and I --

16 MS. MANNING: Do you have a copy for
17 everybody?

18 MR. STERLING: I would like to conclude
19 by saying that my partner and I have a 42-pound
20 border collie. If we miss cleaning up the backyard
21 only after a day or two and it was like a shit mine
22 field out there. Imagine the stockpiles of waste
23 created by these large CAFOs. It is an incredible
24 task of managing them. My grandmother taught me

1 you don't mix money and bleach and you don't crap
2 with water either. CAFOs are a significant cause
3 of water pollution in Illinois and stronger
4 regulations are crucial.

5 I hope that the Illinois
6 Pollution Control Board will heed the word of
7 all those advocating for rural residents in
8 Illinois who have already suffered so much.

9 HEARING OFFICER FOX: Mr. Sterling,
10 thank you very much for your comment. And that
11 concludes the comments on the part of the
12 nine persons who signed in.

13 Is there anyone else who had
14 not signed in who would like to offer a comment
15 before we turn to the substantive testimony?

16 Neither seeing nor hearing any,
17 Mr. Panno, we have reached the point where we're
18 prepared for you. I think a more advantageous
19 place for you to deliver your testimony in response
20 for questions, if Mr. Bodine would be accommodating,
21 is at a desk and chair right here near the front
22 where you've got a microphone and eye-to-eye contact
23 with our court reporter.

24 Mr. Panno, thanks for your

1 flexibility in moving up in front and roughly
2 centered. We have reached the point at which
3 we can have our court reporter swear you in.

4 (Witness sworn.)

5 HEARING OFFICER FOX: Mr. Panno,
6 in discussing procedural issues off the record
7 before we began, we took note of the fact that
8 your original pre-filed testimony had been
9 supplemented, I believe, on the 24th of October.

10 There was an indication that
11 that supplement had not been received by all of
12 the participants in this proceeding. And
13 consequently, it was my judgment that it make
14 sense for you to read your supplemental testimony
15 filed on the 24th in its entirety so that the
16 participants were fully aware of its substance.

17 If we could ask you to do that
18 now at this point, we'll -- at the conclusion of
19 that, we'll turn to questions based upon it.

20 MR. PANNO: Can I ask a quick question?

21 HEARING OFFICER FOX: Surely, sir.

22 MR. PANNO: There's about 30 references
23 in here. Do I need to read each of those?

24 HEARING OFFICER FOX: I would

1 suspect that none of the participants would like
2 for you to recite a long list of references
3 and I am not --

4 MS. MANNING: That's correct.

5 HEARING OFFICER FOX: I'm hearing at
6 least one affirmation on that from Ms. Manning and
7 I assume the Agency and the environmental group is
8 indicating that they, too, would not benefit from
9 that. So thank you for clarifying that, Mr. Panno.

10 If you would please pass over
11 those, we would appreciate it.

12 MR. PANNO: Okay. All right. Updated
13 testimony of Samuel V. Panno updated October 24,
14 2012. Introduction: My name is Samuel V. Panno.
15 I am a senior geochemist with the Illinois State
16 Geological Survey, Prairie Research Institute,
17 University of Illinois. I have extensive expertise
18 in karst geology, karst hydrology and groundwater
19 chemistry and I've published more than 100 peer
20 review original research papers in those fields.

21 I am providing testimony as an
22 expert witness on karst regarding proposed changes
23 to regulations 35 Illinois Administrative Code,
24 Parts 501, 502 and 504, made by Illinois by the

1 Illinois Environmental Protection Agency, IEPA,
2 currently under consideration by the Illinois
3 Pollution Control Board.

4 I am an expert in geology,
5 hydrogeology and groundwater chemistry of karst
6 and other aquifers. My current professional
7 position is senior geochemist with the Illinois
8 State Geological Survey, Prairie Research Institute
9 and University of Illinois.

10 I am a certified groundwater
11 professional with the Association of Groundwater
12 Scientists and Engineers, a division of the
13 National Groundwater Association. I have
14 authored and co-authored over 100 peer reviewed
15 original research articles in a variety of areas
16 of geology, hydrogeology and groundwater chemistry.
17 Some representative publications, most of which
18 I am a senior author, include -- and I assume I
19 can skip those?

20 HEARING OFFICER FOX: Mr. Panno, I
21 appreciate your willingness to do that. In the
22 interest of speed, as you get into -- and forgive
23 my interruption, please.

24 MR. PANNO: No problem.

1 HEARING OFFICER FOX: As you get
2 into the substance of your testimony, if you
3 would draw particular attention to in additions
4 or other changes from your original testimony,
5 I know the Board would appreciate that.

6 MR. PANNO: Okay. The first change
7 was the first sentence under qualifications. I
8 state I'm expert in geology, hydrogeology.

9 Let's see. Okay. Just above
10 that, I state I am providing testimony as an
11 expert witness and in the previous one, I stated
12 that I was testifying as a representative of the
13 Illinois State Geological Survey.

14 Okay. The published research
15 above describes the location and extent of
16 karstified carbonate rock throughout Illinois
17 and it's potential for groundwater contamination.
18 Also relevant is my current research using a
19 liDAR imagery, aerial photography and fieldwork
20 to map karst features in Illinois including
21 cover-collapse sinkholes, solution-enlarged
22 crevices visible in road cuts, quarries and
23 outcrops, and associated lineaments.

24 Additional current research

1 includes sampling of groundwater from karst
2 regions of the midwestern U.S. for bacterial
3 analysis, including karst regions of Wisconsin
4 that are having groundwater quality problems
5 as a direct result of manure application by
6 nearby confined animal feeding operations,
7 CAFOs.

8 I have added the following
9 sentences for clarification. I have witnessed
10 firsthand the runoff of brown, liquid manure
11 applied to frozen ground in a karst region of
12 Wisconsin. The manure and melt water raced
13 across fields and residences and entered private
14 wells. In one instance, the manure and melt
15 water flowed unchanged from a resident's faucet.

16 Karst Areas of Illinois,
17 Introduction: Carbonate rock comprises
18 approximately 25 percent of the bedrock surface
19 of Illinois. Carbonate bedrock ranges from
20 Ordovician to Mississippi in age and is located
21 along the margins of the Illinois Basin and
22 along major geological structures.

23 Sediments overlying carbonate
24 bedrock in Illinois range from zero to more than

1 100 meters of glacial till and loess. Carbonate
2 rock is a major source of groundwater in Illinois
3 and throughout the world with the most productive
4 aquifers having secondary porosity, which is
5 fractures and bedding plane partings, that permits
6 the transport of water into and through the rock.

7 Porosity is further enhanced by
8 dissolution of carbonate rock and the formation
9 of conduit systems along solution-enlarged fractures
10 and along bedding planes. The movement of surface
11 waters, that is rainwater and snow melt, through
12 the soil and into fractures in soluble carbonate
13 rock is responsible for the development of karst
14 terrains.

15 Because of the generation of
16 carbon dioxide by root respiration and microbial
17 activities in soils overlying carbonate rock,
18 infiltrating water becomes acidic prior to
19 entering fractures, joints and bedding planes
20 in carbonate rock. Small amounts of calcite
21 and/or dolomite, the dominant minerals of carbonate
22 rock, dissolve releasing calcium, magnesium and
23 bicarbonate ions into the water approaching
24 saturation with calcite and/or dolomite.

1 Slow dissolution over thousands
2 to hundreds of thousands of years gradually
3 enlarges joints, fractures, and pathways along
4 bedding planes through which groundwater moves.
5 Some solution-enlarged pathways become large
6 conduits or caverns through which groundwater
7 flows to points of discharge. For example,
8 springs.

9 The term "karst" is defined
10 by Ford and Williams as "terrain with distinctive
11 hydrology and landforms arising from a combination
12 of high rock solubility and well developed solution
13 on secondary porosity." Quinlan, et al, 1991,
14 defined a karst aquifer in terms of hydraulics as
15 "an aquifer in which flow of water is or can be
16 appreciable through one or more of the following:
17 Joints, faults, bedding planes and cavities, any
18 or all of which have been enlarged by dissolution
19 of bedrock."

20 Soluble bedrock in Illinois
21 includes limestone and dolomite. Quinlan and
22 others, 1991, further state that, "as
23 generalization, if carbonate rocks such as
24 limestone, marble or dolomite are present, assume

1 that the water moving through these rocks is a
2 karst until or unless convincingly proven
3 otherwise. This statement is correct probably
4 95 percent of the time. Assume also an Orwellian
5 nature to the definition of a karst aquifer: All
6 carbonate terranes are more karstic and underlain
7 by one or more karst aquifers, but some are more
8 karstic than others."

9 Of those areas within Illinois
10 that are underlain by carbonate rock, about 35
11 percent of that area or nine percent of the state,
12 Figure 1, are close enough to the surface to
13 show exposures and be part of freshwater aquifers
14 currently being used by residents and
15 municipalities.

16 These areas include five regions
17 that contain karst features at or near the surface
18 and then there are some references by Weibel and
19 Panno, Panno and Weibel, and so on.

20 Berg, 2001, in discussing
21 sensitivity of groundwater to contamination,
22 stated that, "karst areas are the most sensitive
23 of any geological setting because contaminants
24 can be transported very rapidly."

1 Features that are typical
2 of karst terrain include closed depressions,
3 sinkholes, caves, large springs, fluted rock
4 outcrops, including cutters and grikes along
5 road cuts and in quarries, blind valleys, swallow
6 holes, lineaments, and recently discovered crop
7 lines.

8 However, the apparent absence
9 of karst features in the underground surface,
10 for example, sinkholes, does in no way preclude
11 the presence of an underlining aquifer -- karst
12 aquifer. This is because sinkholes are part of
13 a continuum that extends from large-scale sinkholes,
14 drains, down to nano-scale macropores, Calvin
15 Alexander, University of Minnesota, personal
16 communications, 2009.

17 There is a map of Illinois
18 showing the karst areas of Illinois in dark
19 gray. This is Figure 1. The non-karst area
20 is in light gray. The karst areas represent
21 about 95 percent of the land's surface.

22 The figure caption reads, map
23 of the karst areas of Illinois. Specifically,
24 the map only shows those areas underlined by

1 karstified carbonate rocks and overlain by less
2 than 50 feet of unconsolidated materials as
3 represented in dark gray. This is from Weibel
4 and Panno, 1997.

5 Resent work by Lindsey, et al,
6 2010, has shown that sinkhole density is an
7 important parameter from an aquifer vulnerability
8 assessment point of view. Lindsey and others,
9 2010, developed these categories for sinkhole
10 density using karst areas from four states in
11 the eastern United States, which include the
12 following: Low (less than one sinkhole per 100
13 square kilometers), medium (one to 25 sinkholes
14 per 100 square kilometers), and high (greater
15 than 20 sinkholes per 100 square kilometers).

16 Lindsey, and others, also
17 determined that nitrate concentrations, indicative
18 of anthropogenic (typically agricultural lands)
19 contamination were significantly greater in high
20 and medium sinkhole density areas than low sinkhole
21 density areas. The relatively large pathways
22 present in fissured or karstified carbonate rock
23 allow rapid movement of water into and through
24 the rock bodies. These rock bodies often

1 constitute locally important aquifers in Illinois.
2 However, when near land surface, fissured and
3 karst aquifers are highly susceptible to
4 surface-derived contamination.

5 Recharge to the karst aquifers
6 often is rapid, can be analogous to water movement
7 to and through agricultural drainage tiles and
8 carries with it materials, often macroscopic,
9 from the land surface that can include human and
10 animal wastes, agricultural chemicals, urban
11 runoff and other waste products associated with
12 human culture of a region.

13 In the contrast, recharge to
14 non-karst aquifers typically undergoes a slow
15 migration through fine granular materials, for
16 example, thick, clay rich glacial diamicton,
17 that generally provide sufficient time and an
18 environment for chemical, biological and physical
19 degradation and retardation of pollutants.

20 Unfortunately, residents who
21 draw groundwater from karst aquifers for domestic
22 use often risk ingesting surface-borne contaminants.

23 It is my professional opinion
24 that changes proposed in Section 502.620(h)(j)

1 are not sufficiently protective of groundwater
2 and nearby surface water quality. According to
3 the proposed changes, less than one foot to two
4 feet of soil cover over a karst aquifer would
5 be acceptable for land applied liquid manure.

6 In a karst terrain, two feet
7 of unconsolidated sediment provides little
8 protection for the underlying karst aquifer
9 from surface-borne contaminants like nitrate
10 and enteric bacteria. Macropores or fractures
11 in soils, can extend to six or more feet in the
12 soil and provide fast track recharge water that
13 can bypass any beneficial effects of the soil
14 zone.

15 Fifty feet of unconsolidated
16 material overlying a karst aquifer is the thickness
17 necessary for protection. That's per Dr. Calvin
18 Alexander, University of Minnesota, personal
19 communications, 2012.

20 Karst in Illinois: Cover-collapse
21 sinkholes long been the indicator of choice of
22 regulators for karst terrain and underlying karst
23 aquifers. While it is true that sinkholes are
24 commonly present and are indicators of karst

1 terrain, sinkholes are not always present or
2 obvious in areas underlain by extremely sensitive
3 karst aquifers.

4 Further, not all sinkholes
5 are static entities; that is, sinkholes can be
6 filled in by human activities such as plowing.
7 Unfortunately, the pathway to the bedrock aquifer
8 can still be present, but not obvious. Therefore,
9 if one characterizes a terrain solely on the
10 presence-absence of sinkholes, they risk
11 misidentifying an area such as one with thin soils
12 overlying a karst aquifer.

13 Further, sinkholes are not
14 the only vector for infiltration into the karst
15 aquifer. Macropores, (for example, desiccation
16 cracks, worm holes, root channels), within the
17 unconsolidated sediment extend several meters
18 into the soil zone and can allow contaminated
19 surface water to quickly bypass the soil zone
20 and rapidly enter the underlying aquifer with
21 little or no change.

22 The next sentence is added from
23 the previous version. It is possible to see
24 the depth that surface-borne contamination has

1 reached using profiles of geochemical data (for
2 example, nitrate and chloride) from municipal
3 and private well samples and comparing their
4 concentrations background values determined
5 by Panno, et al, in 2006.

6 Karstified carbonate rock
7 in Illinois contains a secondary porosity and
8 permeability thanks to abundant fractures in
9 soluble rock in the formation of solution-enlarged
10 crevices. Many assume that if there are no
11 sinkholes in that area, the area is by definition,
12 not karst. This assumption is incorrect because
13 depending on the thickness of the soil zone,
14 sinkholes may be noticeable or be obscured by land
15 use (especially row-crop agriculture).

16 Further, in areas with very thin
17 soils (less than 25 feet) or thick clay-rich soils,
18 sinkholes may not be obvious or present. However,
19 the underlying carbonate bedrock can be (and usually
20 is) replete with solution-enlarged crevices that
21 constitute a karst aquifer.

22 Surface-borne contaminants can
23 enter the aquifer via macropores in the soil,
24 via streams that flow from areas with thick,

1 clay-rich sediments and no sinkholes to areas
2 with numerous use sinkholes and losing streams,
3 or from excavations.

4 Consequently, any portion of
5 Illinois underlain by carbonate rock and with
6 less than 50 feet of overburden may qualify as
7 karst terrain. This was added, this last sentence.
8 An example of the problems associated with less
9 than 50 feet of unconsolidated material overlying
10 karstified bedrock is the development of sinkholes
11 in a school yard resulting from pumping of a nearby
12 well in Dongola, Illinois.

13 Because many of the residents
14 in rural areas have private wells within the
15 Karst aquifers, and because municipalities adjacent
16 to rural areas have wells within karst aquifers,
17 effluent of any kind of discharge on the surface
18 could enter wells that tap into the creviced network
19 and groundwater flow rates within the karst aquifers
20 are often at miles per hour.

21 Recommendations: I strongly
22 recommend that very large to large CAFOs not be
23 permitted in karst areas of the state as defined
24 by carbonate bedrock where the thickness of

1 unconsolidated materials is less than 50 feet,
2 particularly in those areas lacking in clay-rich
3 glacial till. That is, the driftless areas of
4 Illinois.

5 The following sentence has been
6 added. Karst areas should be identified
7 from a combination of previous publications and
8 regional and site-specific investigations involving
9 fieldwork using appropriate techniques for karst
10 studies (for example, trenching and dye tracing)
11 as outlined by Quinlan and others in the
12 Environmental Protection Agency, 1989.

13 A major problem with proposed
14 changes in 35 Illinois Administrative Code, Parts
15 501, 502, 504 is the use of "sinkholes" as the
16 indicator of karst. Karst should be defined as
17 any carbonate bedrock showing fractures, joints,
18 partings, and/or dissolution features (for example,
19 solution-enlarged crevices) capable of transmitting
20 water.

21 It is important to understand
22 that sinkholes are only one of the many indicators
23 of karst terrain and underlying karst aquifers.
24 Quinlan and others, 1991, stated that "some people

1 confuse a sinkhole with the karst itself. This is
2 like confusing Cyrano de Bergerac's nose with the
3 man himself. All will agree that there was a lot
4 more to Cyrano than just his nose. So also, there
5 is far more to a karst than just a sinkhole or a
6 cave."

7 Further, sinkholes (especially
8 cover-collapse sinkholes that are common in
9 Illinois) are not permanent features, but can be
10 filled in as the result of human activities (for
11 example, plowing in fields) particularly where
12 soils are thin (less than 25 feet). Regardless of
13 sinkhole expression, the pathways to bedrock are
14 still present and the sinkholes can and typically
15 will reappear.

16 Other indicators of karst
17 terrain include creviced exposures (natural
18 outcrops, road cuts, and quarries) caves, trellised
19 stream patterns, lineaments and recently discovered
20 crop lines. Consequently, incipient sinkholes and
21 macropore pathways to the underlying karst aquifer
22 are present in the karst areas of Illinois and
23 can remain undetected. Unconsolidated materials
24 of less than 25 feet provide insufficient protection

1 to groundwater from land application of liquid
2 manure produced at these facilities.

3 Optimally, areas potentially
4 suitable for siting of large and very large CAFOs
5 should be identified based on the absence of
6 indicators of karst terrain and a minimum of 50
7 feet of unconsolidated materials overlying karst
8 bedrock.

9 Thank you for the opportunity
10 to provide testimony regarding proposed changes
11 to Title 35 Illinois Administrative Code, Parts
12 501, 502 and 504. Respectfully submitted,
13 Samuel V. Panno, M.S., Certified Groundwater
14 Professional, Illinois State Geological Survey,
15 Prairie Research Institute, University of
16 Illinois.

17 HEARING OFFICER FOX: Mr. Panno,
18 thank you for your patience in reading through
19 that in its entirety particularly as it reflects
20 the updated version that you filed with the
21 Board on the 24th.

22 At this point, we had indicated
23 that we would turn to the Agricultural Coalition
24 for follow-up questions based on the substance

1 of your testimony, and Ms. Manning, we can do
2 that before turning to the Agency for it's
3 follow-up questions and the environmental coalition
4 as well.

5 MS. MANNING: Thank you,
6 Mr. Hearing Officer. Can everyone hear me?

7 WHEREUPON:

8 S A M U E L V. P A N N O
9 called as a witness herein, having been first duly
10 sworn, deposeth and saith as follows:

11 DIRECT EXAMINATION

12 By Ms. Manning

13 Q. Good morning, Mr. Panno.

14 A. Good morning.

15 Q. I'm Claire Manning and I'm
16 representing the Agricultural Coalition today.
17 I have a couple of questions, first, in terms
18 of the changes from the -- and I apologize.
19 I didn't realize that you had substituted the
20 testimony and amended the testimony and I had
21 not had a chance to look at it.

22 I appreciate as well you going
23 through it today, but there appear to be some
24 changes as well that you may not have earmarked.

1 I just want to make sure that the first one that
2 I noticed is that in your testimony that you filed
3 with the Board originally you indicated
4 that you were testifying on behalf of the State
5 Geological Survey and in this particular testimony,
6 you testified you are -- you do not indicate that
7 you are testifying on behalf of the State Geological
8 Survey. So my question is --

9 A. Yes, ma'am.

10 Q. -- are you testifying -- on whose
11 behalf are you testifying on behalf of today?

12 A. I'm testifying as an expert witness
13 right now.

14 Q. But your testimony is the testimony
15 of you --

16 A. That's right.

17 Q. -- Sam Panno, and not the testimony
18 of the Illinois Geological Survey?

19 A. That's correct.

20 Q. Thank you.

21 A. And --

22 Q. Thank you. The second change I
23 noticed is the first sentence where you have a
24 qualification. And you say you're an expert in

1 geology, hydrogeology and groundwater chemistry
2 of karst aquifers.

3 And in your revised testimony,
4 the you more specifically say chemistry of karst
5 and other aquifers.

6 A. Yes.

7 Q. Could you explain why you made that
8 change?

9 A. Most of the changes beyond this
10 point are just clarification. So what I wanted
11 to express is that I do research in other areas
12 other than karst. So we look at sand gravel
13 aquifers, bedrock aquifers, everything.

14 Q. Right. And karst is not exactly an
15 aquifer as well, would you agree with that?

16 A. It is an aquifer, yes.

17 Q. Okay. The -- you said several times
18 in your testimony -- well, let me ask you first,
19 it looks like the map has changed as well. Your
20 original testimony had a map from 1997 and you
21 revised that to a more recent map from 2007, I
22 believe?

23 A. No, this is --

24 Q. 2009?

1 A. This is the same map.

2 Q. Is there a newer map, to your
3 knowledge?

4 A. No, there is not. We are currently
5 working on one.

6 Q. You indicated in your testimony
7 several times and I didn't see it in the written
8 testimony, but I thought I heard you say when you
9 were orally speaking that karst areas represent
10 95 percent of Illinois' surface?

11 A. No.

12 Q. Okay.

13 A. I'm sorry.

14 Q. Nine percent?

15 A. Nine percent. That's right.

16 Q. As indicated in the map?

17 A. That's right.

18 Q. So karst-like features?

19 A. That's right.

20 Q. Okay.

21 A. Well, in this particular map, what
22 we did was we looked at the thickness. We looked
23 at where carbonate rock occurred, whether it's
24 had solution features or karst features in the

1 bedrock, and whether it was less than 50 -- has
2 less than 50 feet of unconsolidated matter. So
3 that's what the dark areas are.

4 HEARING OFFICER FOX: And just
5 for the record, if I clarify, when you're
6 referring to the map, Mr. Panno, you're
7 referring to Figure 1 --

8 THE WITNESS: That's correct.

9 HEARING OFFICER FOX: -- in both
10 your original and your supplemental testimony?

11 THE WITNESS: That's right.

12 HEARING OFFICER FOX: Thank you
13 very much and pardon the interruption,
14 Ms. Manning.

15 BY MS. MANNING:

16 Q. So looking at this map, it appears
17 that you have labeled -- it appears to be all of
18 Jo Daviess County as a karst area; is that correct?

19 A. That's correct.

20 Q. So is your recommendation then that
21 no livestock application of waste ought to be done
22 in Jo Daviess County nor should any new facilities
23 be built in Jo Daviess county of a livestock
24 nature?

1 A. I believe my testimony was that no
2 large to very large CAFOs be sited within the karst
3 areas of the -- of -- indicated in the dark gray
4 area. So that includes Jo Daviess County and then
5 application by those -- by those CAFOs would not
6 be a wise thing to do.

7 Q. Are you aware, Mr. Panno, that in
8 the state of Illinois, it's the Illinois Department
9 of Agriculture that is responsible for the siting
10 of new facilities pursuant to the Livestock
11 Management Facilities Act?

12 A. No, I do not.

13 Q. Are you aware that there is a
14 definition of karst area in the state of Illinois --

15 A. Yes, I am.

16 Q. -- under the Livestock Management
17 Facilities Act and that is found at 510 ILCS
18 77/10.24?

19 A. (No response.)

20 Q. And under Illinois law, do you know
21 what the definition of karst area is under Illinois
22 law?

23 A. I haven't memorized it. I think
24 Don Keefer and I at the Geological Survey helped

1 write that.

2 Q. Okay. So if I would say it means
3 an area with a land surface containing sinkholes,
4 large springs, disrupted land drainage, and
5 underground drainage systems associated with
6 karstified carbonate bedrock and caves or a land
7 surface without these features, but containing a
8 karstified carbonate bedrock unit generally overlain
9 by less than 60 feet of unconsolidated materials,
10 you would agree that that's the definition of a
11 karst area in the state of Illinois?

12 A. Yes.

13 Q. And would you agree that pursuant
14 to this particular definition of karst area in
15 Illinois, you indicated you didn't realize that
16 the Illinois Department of Agriculture is
17 responsible for the siting of facilities based on
18 site specific characterizations in a karst
19 area?

20 A. Did I? No. I had probably forgotten
21 that. At some point, I'm sure I was aware of that.

22 Q. And I believe your testimony also
23 indicated the testimony that was originally
24 filed did not indicate that it's important that

1 site-specific investigations be done to determine
2 whether the area is actually karst and problematic,
3 but instead your new testimony says that a
4 site-specific investigation is important?

5 A. Yes, ma'am.

6 Q. You would agree that site-specific
7 investigation is important?

8 A. Yes, ma'am.

9 Q. And, in fact, you testified you are
10 familiar with the A.J. Boss case that recently took
11 place in Jo Daviess County?

12 A. Yes.

13 Q. And you testified on behalf of the
14 Helping Others Maintain Environmental Standards?

15 A. No.

16 Q. HOMES?

17 A. No. I testified as an expert witness.

18 Q. On behalf of?

19 A. On behalf of the Illinois State
20 Geological Survey.

21 Q. And your testimony -- you weren't paid
22 for that testimony by anyone?

23 A. I believe they paid travel costs
24 and we turned that into the state.

1 Q. And the -- if the issue there was
2 an attempt to enjoin a large CAFO, specifically
3 a dairy from being built in Jo Daviess County;
4 is that correct?

5 A. Could you repeat that, please?

6 Q. The issue was the attempt to enjoin
7 or to stop, if you will, a large dairy from being
8 sited in Jo Daviess County?

9 A. My position was I was not there to
10 stop the facility, but to bring up points and
11 problems associated with its sighting in a karst
12 area.

13 Q. And are you aware that the court
14 ultimately allowed the facility to be built on
15 the basis of -- that no site-specific -- that
16 your testimony was more general in nature and
17 did not include any site-specific testing or
18 any site-specific testimony whatsoever?

19 A. That's right.

20 Q. Okay. Thank you. So again you
21 believe it's important that rather than generally
22 stating that a large CAFOs can't be built in any
23 karst area that represents nine percent of the
24 state of Illinois, that site-specific

1 characterizations are important?

2 A. The site characterization, as I
3 describe it here within this testimony, refers
4 to determining whether you have -- whether a
5 facility has if -- meets the definition of karst
6 as I have described it in this testimony.

7 For example, drilling to see
8 if you have, say, 50 feet of overlying materials
9 when consolidating materials over karstified
10 carbonate bedrock, and so the investigation --
11 you know, the site characterization, if you will,
12 would be looking at the thickness of the material
13 overlying the bedrock and looking at the bedrock
14 to see, you know, in the region whether it was
15 karstified or not.

16 Q. All right. So things like core
17 samples might be important to make those
18 determinations?

19 A. We found that core samples don't
20 really tell us much other than -- when you're
21 in that area where you have road cuts, quarries,
22 where the bedrock is within a few feet of the
23 soil -- of the surface, excavations are a better
24 way to do it. Dye tracing is a better way to go.

1 Q. But would you agree that even in
2 some karst areas where there may be an aquitard
3 underlying the original -- the upward soil or clay
4 or shale, that the permeability is much different
5 than it would be otherwise?

6 A. The -- if you're referring to the
7 shale that overlies the galena and dolomite in
8 eastern Jo Daviess County, that shale was no longer
9 a shale. It was more like a clay material, which
10 in itself is very good. You want something like
11 that.

12 However, in a karst area where
13 crevices, particularly in Jo Daviess County can
14 be up to three feet wide, that material can collapse
15 into this crevice where there were some previous
16 sinkholes.

17 So the reason for the 50 feet
18 of overburden or material -- unconsolidated material
19 above the karstified bedrock is so that the chances
20 or the likelihood of getting sinkholes forming in
21 these areas, for example, beneath a waste pond or
22 waste containment facility, would be the reason you
23 would want to characterize the site and find out
24 what the thickness of that material is overlying

1 the bedrock.

2 Q. In your testimony, you mentioned that
3 macropores can extent through several feet of soil,
4 yet you suggest prohibitions for areas where the
5 soils thickness is not up to 50 feet. Could you
6 explain that?

7 A. Yes. The 50 feet refers primarily
8 to the potential for sinkhole formation. The
9 macropores refers to very thin soils. So, for
10 example, if you have an area with, say, 15 feet
11 of soil, there is -- there is a likelihood that
12 macropores will allow surface runoff to enter
13 bedrock crevices very, very quickly.

14 Research done by Don Keefer at
15 the Illinois State Geological Survey in the mid-'90s
16 show that they were looking at tile drains in
17 central Illinois and they used tracers -- dye
18 tracers, chemical tracers, and found that there
19 were essentially two modes of movement of water
20 through the soils.

21 One was through the matrix and
22 one was through the macropores, which were
23 desiccation cracks, the contacts between soil
24 peds and so the tracers after a half an inch of

1 rain when they applied them to the surface and
2 after a half an inch of rain, these tracers were
3 in the tile drains within a few hours. So it's
4 a very rapid process and the reason -- and the
5 focus of that is very thin soil.

6 So, for example, in -- in
7 the proposed amendments, there was mention of
8 application in less than ten inches of -- I'm
9 sorry -- ten inches of soil or more and 20 inches
10 of soil or more than of the application of liquid
11 animal waste and the presence of macropores, which
12 seem to be ubiquitous in clay soils in the state
13 would allow these materials to flow directly into
14 the aquifers.

15 Q. You're aware, of course, though of
16 practices such as tillage and incorporation and
17 wouldn't those practices destroy these macropores?

18 A. No.

19 Q. And why not?

20 A. The tillage breaks up the topsoil,
21 but the macropores are still there.

22 Q. Certainly, they would reduce any
23 risks?

24 A. I don't know that for a fact. I

1 would think that by breaking up the surface, you
2 would actually enhance and recharge into those
3 areas very quickly.

4 Q. So are you suggesting these practices
5 are not good practices for the agricultural
6 community to do tillage and --

7 A. No. I'm suggesting that in areas
8 with very thin soil underlain by carbonate rock
9 that is karstified, these are potential pathways
10 for groundwater contamination, and that's it.

11 Q. And you are suggesting then that
12 all of Jo Daviess County, in effect, is a potential
13 pathway and the Board should -- the Board's rule
14 should prohibit application of any manure throughout
15 Jo Daviess County because, in your opinion, is its
16 all a karst area?

17 A. No.

18 Q. That's what I understand your
19 testimony to be.

20 A. No. My testimony refers to CAFOs
21 only. As I stated, a large and very large CAFOs
22 that apply manure around on adjacent fields and
23 in areas of Wisconsin where we have observed this
24 type of thing, we see groundwater contamination

1 from the livestock.

2 Q. Whether a facility is large or small,
3 their land application -- let's just look at the
4 land application practices as opposed to the siting
5 of the facility one way or the other and let's take
6 that aside in that the Department of Agriculture
7 regulates the siting pursuant to the Livestock
8 Management Facilities Act, so in terms of the
9 Board's role in determining appropriate land
10 application practices, why does your testimony as
11 to a large CAFOs -- a prohibition on a large CAFO
12 have any difference when the land application
13 practices are the same whether they would be large
14 or medium or small in terms of the spreading of the
15 manure?

16 A. I focused my testimony on CAFOs
17 only and with regard to the spreading of manure
18 onto very thin soils in Jo Daviess County, we
19 see -- in springs, we see evidence of animal waste
20 contamination. However, if you're looking at small
21 areas of application, the chances -- you know, the
22 likelihood of getting massive ground contamination
23 are less, but let me state that in all cases,
24 any land use is going to result in some degradation

1 of water quality.

2 Q. I have just one final question and
3 then I'm going to turn it over to the EPA. Could
4 you explain the differences in -- the 1997 map
5 that you had in your original testimony that you
6 filed on 10/16 and the new map that you have
7 included now, is that the same map?

8 A. It's the same map. It has not
9 changed.

10 Q. Okay. And is there a newer map?

11 A. There is not.

12 MS. MANNING: Okay. I'm through with
13 my questions for now, but
14 I might have some follow-ups.

15 HEARING OFFICER FOX: Very well. At
16 this point, Ms. Manning has indicated we can turn
17 it over to the Agency for questions, if you have
18 them, of Mr. Panno.

19 C R O S S - E X A M I N A T I O N

20 By Ms. Olson

21 Q. Good morning. My name is Joanne Olson
22 and I have a few questions for you Mr. Panno.

23 My questions are really going
24 to go to basic geology questions to help us all

1 understand what you are saying in your testimony.

2 So the first question I have
3 for you, you mentioned the Illinois basin in
4 the first paragraph of your testimony. Can you
5 explain for us what you mean by the Illinois basin
6 is.

7 A. The Illinois basin is a spoon shaped
8 geological structure that occupies most of Illinois
9 and parts of Indiana, Kentucky. It's essentially a
10 stack of -- is the pile of rocks from -- going from
11 Cambrian to present. At its thickest -- the rocks
12 are thickest in the center, which is somewhere down
13 in southern Illinois and thin as you go to the
14 margins. As you go to the western Illinois, the
15 basin margin is essentially along the Illinois --
16 the Mississippi River. As you go across northern
17 Illinois, the basin margin is just south of Jo
18 Daviess County. It's a -- does that cover what you
19 were asking?

20 Q. I think so. When you described it as
21 a spoon, are you saying the edges?

22 A. Well, it's depressed so that the
23 edges have the thinnest layers of rock and the
24 actual depth in the center is probably something

1 on the order of 15,000 feet or more.

2 Q. And offering the covering the rock
3 in the center is mostly -- is there more cover over
4 the center of the Illinois basin than on the edges
5 of overburden?

6 A. Oh, are you talking about
7 unconsolidated material?

8 Q. Yes.

9 A. Oh, yeah. It's about the same. So
10 it's the basin is the geologic structure and the
11 thickness of the materials, all overburden, you
12 know, consolidated materials in Illinois varies,
13 but it's not controlled by the Illinois basin.

14 Q. You testified that carbonate bedrock
15 comprises 25 percent of the bedrock surface.

16 A. I think it was 35 percent.

17 Q. Well, the first paragraph of your
18 testimony says, and I will read it here to you,
19 the carbonate rock comprises approximately
20 25 percent of the bedrock surfaces in Illinois.

21 A. Okay.

22 Q. Is that a correct statement?

23 A. I think so.

24 Q. Okay. So actually I was somewhat

1 confused because later on, you say that other
2 areas in Illinois that are underlain by carbonate
3 rock, 35 percent of that area is at the surface.

4 A. Okay.

5 Q. Are those two numbers the same?

6 A. They are the same. They should be
7 35 percent.

8 Q. Okay. Can you explain bedrock
9 surface to us? What do you mean by bedrock surface?

10 A. It's merely the surface of the bedrock
11 under -- it's hard to describe this without using
12 the same term, but it's the consolidated rock
13 underlying the unconsolidated materials that include
14 glacial drifts, sand and gravel soils, those sort of
15 things.

16 Q. So in your map, on Figure 1, is the
17 dark gray area the 35 percent, is that 35 percent
18 of --

19 A. That's right.

20 Q. -- carbonate?

21 A. Oh, I'm sorry. That's 90 percent,
22 the dark gray areas.

23 Q. So where is the 35 percent of the
24 carbonate bedrock --

1 A. That's not shown in this map.

2 Q. Thank you.

3 I'm going to move on to secondary
4 porosity. You talk a lot in your testimony about
5 porosity. I was wondering if you could explain to
6 us what do you mean by that?

7 A. When the rocks form, particularly in
8 this case, we're talking about carbonate rocks, they
9 form from bugs and shells in marine environments.
10 The rocks -- the sediment were compressed, heated
11 and much of the water was driven out of them
12 and they became intact rock. Subsequent to that,
13 tectonic forces, extension, compression, within
14 the mid continent region created fractures because
15 the carbonated rocks are siteable in soiled water,
16 rainwater, snow melt, infiltrating waters into these
17 fractures dissolve these rocks along the fracture
18 margins and created larger openings and large
19 crevices. In some areas of the state, these
20 crevices are up to three feet wide. Some of these
21 are hairline fractures, all in the areas, and
22 groundwater is flowing through these.

23 Q. Well, I think I heard you saying
24 is that secondary porosity are pores that are formed

1 in the rocks after the rocks have already, like,
2 formed into a rock.

3 A. That's correct.

4 Q. Is that a simpler way of understanding
5 it?

6 A. That's very good.

7 Q. And so can you tell me whether or not
8 all carbonate rocks have secondary porosity?

9 A. All of the ones I have seen have it.

10 Q. But it is possible for secondary rock
11 not to -- for carbonate rock not to have secondary
12 porosity?

13 A. It's possible.

14 Q. And can you tell me how much of
15 Illinois' carbonate bedrock does not have secondary
16 porosity?

17 A. I haven't looked at all of the
18 bedrock in Illinois, but where it's exposed
19 in southern Illinois, southwestern Illinois and
20 western Illinois, northeastern Illinois, it has
21 fractures and secondary porosity.

22 Q. I have a map here that you referred
23 to in your testimony. You give us a citation
24 in your recommendation to -- I think it's a map

1 found at the Illinois State Geological Survey for
2 the driftless map. Do you recall that in your
3 testimony?

4 A. The driftless map? I'm not sure what
5 you mean. Okay. Yes. This is the drift thickness
6 map, yes.

7 Q. Drift thickness map. Thank you. And
8 you refer to this in your testimony, correct?

9 A. That's correct.

10 Q. So I just want you to take a few
11 minutes to explain this.

12 MS. OLSON: I'm going to mark
13 this as Exhibit 22 at this time and I
14 would ask that it be moved into the record.

15 (Document marked as
16 Agency Exhibit No. 22
17 for identification,
18 10-30-2012.)

19 HEARING OFFICER FOX: And that is the
20 correct number, Ms. Olson. Thank you for tracking
21 that.

22 You've heard Ms. Olson's motion
23 on behalf of the Agency to admit this map into the
24 record as Exhibit No. 22. Is there any objection

1 extends down to the -- maybe the bottom two and a
2 half counties from the bottom of Illinois.

3 On the western part, southwestern
4 Illinois and a portion just north of there, that's
5 part of the Mississippi flood plain.

6 Q. So when you say -- when the map here
7 indicates on the legend on the side, it says, the
8 white areas have no drift, can you tell us -- can
9 you estimate for us whether or not there is any
10 overburden on these areas?

11 A. There is overburden. We have done
12 work in southern Illinois and northwestern Illinois
13 and there is soils that have built up from the
14 windblown silt from glacial times and so you get
15 soils, but in the white areas, where it says no
16 drift, the soils are -- or the overburden is
17 essentially less than 25 feet in places where the
18 rock may be exposed.

19 Q. Okay. So the areas that are light
20 green, would you say that there's about 100 feet
21 of overburden?

22 A. According to the legend, yes.

23 Q. Can you take a look at exhibit --
24 Figure 1 of your testimony and explain to us how

1 the dark shaded areas compares to this drift
2 thickness in this map in regards to the amount of
3 overburden?

4 A. Do you mean as far as there being
5 thicker than 50 feet of glacial drift material?

6 Q. Yes. It you point those areas out
7 to us.

8 A. Let's see. There appears to be some
9 in western Illinois, southern Illinois and a little
10 bit in southwestern Illinois. I think that's it.

11 Q. So in those areas that are dark gray
12 on this map, according to Exhibit 22, you would
13 agree that there is over 50 feet of overburden?

14 A. In places, there are, yes. That's
15 why I stress this characterization of the area,
16 site characterization, regional characterization be
17 conducted if you are trying to put in -- site a
18 CAFOs. Then you can look at it more closely. This
19 map was produced from the thousands of -- thousands
20 of drill logs throughout the state and there are
21 gaps in it. It's not precise, but it's very
22 usable as a guide -- as an indicator, but not --
23 you cannot blow it up and go to a specific area
24 and say okay, this should be exactly 100 feet or

1 200 feet. So for that reason, we generalize these
2 areas in the Figure 1.

3 Q. Thank you. I want to move on to a
4 different line of questioning. Previously, I
5 asked you about secondary porosity and I think
6 your testimony explains that it takes thousands of
7 years for these joints to form; is that correct?

8 A. It takes -- actually, the joints or
9 the fractures occur early on after liquefaction
10 after the rock is formed. With the moving crust,
11 it fractures. So the fractures form and for some of
12 these areas, the joints could be forming or could
13 have formed million of years ago.

14 Q. Can you explain how long it takes for
15 the joints to enlarge in terms of how much bigger
16 the joints get in five years, ten years?

17 A. Oh, in my lifetime, you would probably
18 see a couple millimeters of a fracture enlarge. Not
19 from now, but from beginning to end.

20 Q. The next area I want to ask you
21 questions about is the definition of karst and I
22 know Ms. Manning asked you some definitions, but
23 I'm a little confused about what you mean when
24 you say karst.

1 I'm going to start with your
2 original testimony. In the testimony that you
3 filed on October 16th, you quote Dr. Quinlan for
4 the proposition that if bedrock of an area is
5 composed of carbonate rock in areas considered
6 karst underlain by a karst aquifer unless proven
7 otherwise.

8 My question to you is does
9 Dr. Quinlan's definition of karst apply to carbonate
10 bedrock at the bedrock surface or any carbonate
11 bedrock in the Illinois?

12 A. It applies to any carbonate bedrock
13 in the world.

14 Q. So if it's not driftless, it would
15 still be considered karst?

16 A. Yes.

17 Q. Does Dr. Quinlan's definition of karst
18 include carbonate bedrock, which does not have
19 secondary porosity?

20 A. Say that again. I'm sorry.

21 Q. Does Dr. Quinlan's definition of karst
22 include carbonate bedrock, which does not have
23 secondary porosity?

24 A. No, it wouldn't. Well, no.

1 Dr. Quinlan said that somewhere in this -- I don't
2 see exactly where I have it, but this is something
3 that occurs 95 percent of the time. So there are
4 bodies of carbonate bedrock without secondary
5 porosity.

6 Q. So would he consider those karst?

7 A. No.

8 Q. Then also in your testimony you site
9 Ford and Williams for the definition of karst as
10 terrain with distinctive hydrology and landforms
11 arising from a combination of high rock solubility
12 and well developed secondary porosity.

13 So here this definition, we have
14 a requirement of well developed secondary porosity?

15 A. Yes.

16 Q. Do you believe that Dr. Quinlan's
17 definition differs from Ford and Williams'
18 definition of karst?

19 A. Well, I think that Quinlan was talking
20 about carbonate rock in general and the likelihood
21 you would have karst features or karst aquifer
22 within a carbonate rock body whereas Ford and
23 Williams focus more on what a karst aquifer is.

24 Q. Do you think an adequate definition

1 of karst would be any carbonate bedrock not overlain
2 by 50 feet or more of unconsolidated materials?

3 A. No. It would be if the carbonate
4 bedrock showing karst features solution-enlarged
5 crevices --

6 Q. So in your opinion, a karst terrain
7 or a karst area would have to have karst features
8 such as a sinkhole or enlarged crevices or joint
9 caves?

10 A. That's correct. And the 50 feet of
11 overburden is more related to protection against
12 sinkholes forming -- sinkholes forming within -- at
13 the surface.

14 Q. So under your -- let me see if I
15 understand this correctly. If there was carbonate
16 bedrock without secondary porosity or these other
17 karst features --

18 A. Yes.

19 Q. -- and it was not covered by over 50
20 inches of overburden, you would not consider that
21 karst?

22 A. That's correct.

23 Q. So it could be ten inches of
24 overburden and you still would not consider that

1 karst?

2 A. That's correct.

3 Q. Do you believe that your definition
4 that you just articulated is consistent with the
5 LMFA?

6 A. I haven't seen it in a while. I
7 think it was just read a few minutes ago.

8 Q. Would you like to see it? I can pass
9 it down to you?

10 A. I -- I recall. I think it's -- I
11 think it's consistent with it.

12 Q. I have another question about your
13 map and your testimony. You indicate that there
14 was three different levels of sinkholes: Low level,
15 medium level and high level; is that correct?

16 A. That was -- that was a paper by a
17 gentleman named Lindsey and he referred to karst
18 areas with sinkholes and their susceptibility to
19 groundwater contamination. So he looked at low,
20 medium and high with respect to the number of
21 sinkholes per 100 square kilometers.

22 Q. Can you tell me whether or not the
23 areas on this map are low, medium or high density
24 sinkhole areas?

1 A. I think most of them are between
2 medium and high. Some are extremely high. Some
3 areas in southwestern Illinois have sinkhole
4 densities of 100 sinkholes per square mile
5 or square kilometer. In Jo Daviess County, we
6 see sinkholes all over the place, so yes.

7 Q. You describe a type of sinkhole as
8 cover collapse?

9 A. That's correct.

10 Q. Can you explain what that means?

11 A. That's essentially overburden sediment
12 collapsing into a crevice, a solution-enlarged
13 crevice, and so as opposed to, you know, it's a
14 feature of the sediment. So if you have no
15 sediments, you wouldn't see the sinkholes. What
16 you would see is probably crevices. If you have
17 a little soil, you might get gravel in the crevices
18 and you wouldn't see any sinkholes at all.

19 Q. So --

20 A. So the cover collapse is essentially
21 the way they form. So you will see areas where
22 there may be 30 feet of glacial drift and loss
23 and then water -- groundwater will flow through
24 the crevices and recharge events, rainwater, will

1 tend to cause collapse of the overlying sediment
2 into these crevices and it works its way up very
3 similar to the shape of a silo.

4 It works its way up from the
5 bottom and then the surface collapses and you
6 get a tube or a conduit straight down and then
7 this erodes and you get kind of a bowl-shaped
8 sinkhole. That's what we refer to as cover
9 collapse sinkholes.

10 Q. Can you explain what you mean by the
11 statement that regulators only regulate for cover
12 collapse sinkholes?

13 A. Where do I say that?

14 Q. I think -- I believe you said it in
15 response to Claire Manning's question or here is
16 a quote from your testimony; cover-collapse
17 sinkholes have long been the indicators of choice
18 of regulators for karst terrain and underlying karst
19 aquifers.

20 A. Yes, ma'am.

21 Q. Can you explain that statement for
22 us?

23 A. Well, it's -- part of the problem
24 with karst is people look at -- focus on sinkholes

1 as the indicator of karst terrain and if an area
2 doesn't have any sinkholes or no recognizable
3 sinkholes, then they don't want to -- they don't
4 refer to it as karst.

5 Q. Does the lack of recognizable
6 sinkholes indicate that the carbonate bedrock
7 has less secondary porosity than if there was
8 observable sinkholes?

9 A. It depends on the thickness of the
10 sediment. For example, in areas where the sediment
11 is three to four feet thick, you may not get
12 sinkholes, per se, but you will have pathways going
13 down into the bedrock through the soil zone. So
14 sinkholes in areas with shallow overburden tend not
15 to form identifiable sinkholes or sinkholes that you
16 would look at and identify as clearly as a sinkhole.

17 I mean, you would have to really
18 look and if an area is being cultivated and plowed,
19 you would never see them even know they form
20 periodically and disappear. That's what I meant.

21 Q. So is it your opinion that the
22 Illinois EPA proposal regulates only covered
23 collapsed sinkholes?

24 A. That was my opinion when I read

1 the amendments, yes, because nowhere was karst
2 mentioned, only sinkholes.

3 Q. So would a regulator have to regulate
4 karst to regulate sinkholes that are not cover
5 collapsed?

6 A. Sinkholes that are not cover
7 collapsed, are you referring to areas where
8 it's thin soil and you can't see them or what?

9 Q. I'm referring to what you mean
10 by sinkholes are not cover collapsed. I'm trying
11 to understand how we would regulate them if we don't
12 regulate them by using the word sinkholes.

13 A. I understand what you mean. The
14 focus of my testimony was the fact that only
15 sinkholes were being considered if and thin soils
16 were easy access for surface-borne contaminants
17 could get into the shallow karst aquifer, which
18 were not considered.

19 Q. By that, are you referring to the
20 macropores?

21 A. In part, yes.

22 Q. You testified that recharged karst
23 aquifers often is rapid. How much overlay would
24 be required so that the recharge would not be

1 rapid?

2 A. I don't have a good number. I can
3 give you examples. We see recharge in areas with
4 less than 25 feet of overburden with rapid recharge,
5 some going through macropores, and some going
6 through sinkholes or unidentified sinkholes.

7 Q. So if I'm hearing you correctly, are
8 you saying that overlay that is less than 25 feet
9 could still have rapid recharge?

10 A. Within the absence of large sinkholes
11 or something, you could go out and say there is a
12 sinkhole and water is pouring into it, the answer
13 is yes.

14 Q. Have you reviewed the Agency's
15 proposal regarding land application of livestock
16 waste?

17 A. Probably. I think so, yes.

18 Q. Are you aware that the Illinois EPA's
19 rules and its application rates of livestock waste
20 depending on site-specific criteria of the field?

21 A. Is that referring to the less than
22 ten inches, less than 20 inches?

23 Q. That's a portion of it, yes, but
24 there is also site-specific field assessment

1 that's done to determine what type of rates you
2 can apply the livestock waste on.

3 A. Okay. I don't recall that.

4 Q. So if I suggested to you that
5 livestock waste was applied at an agronomic rate,
6 does that affect your statement that rapid recharge
7 would occur with less than 25 feet of overburden?

8 A. Yes. It's my understanding that
9 agronomic rates are related to nutrients only;
10 is that correct?

11 Q. I believe.

12 A. Yes.

13 Q. I think so.

14 A. Yes. And with animal waste,
15 there is also a component of bacteria and so
16 the fact that the soils can uptake a certain amount
17 of nutrients does not consider the fact
18 that bacteria in the soil zone and the bedrock areas
19 within soil.

20 Q. Can you tell me the amount of
21 bacteria that would be removed by it ten inches of
22 overburden?

23 A. Do you want me to guess? I have no
24 idea. I wouldn't think much at all.

1 Q. If you don't know, that's a perfectly
2 fine answer.

3 A. Yeah. No. I could give you examples
4 of, you know, areas in Wisconsin, Kentucky,
5 Missouri.

6 Q. But can you tell us a figure, a
7 number?

8 A. I do not have a number.

9 Q. Can you tell us the amount of nutrient
10 removal that's established when waste passes through
11 ten inches of unconsolidated material?

12 A. If it contains macropores, the waste
13 would go directly into the soils -- into the bedrock
14 and you would -- macropores are present most of the
15 time. You tend to see them.

16 Q. Would this waste travel at the same
17 rate if there's no precipitation that's applied to
18 the field, so if it's dry?

19 A. It depends on how much is applied,
20 you know. For example, if you apply, say, a half
21 an inch of liquid waste to a surface, it would be
22 comparable to what we saw with a half an inch
23 of rainfall in the tile drain studies. It goes
24 in very quickly. So, you know, using that as

1 an analogue, yes.

2 HEARING OFFICER FOX: Ms. Olson,
3 I'd like to interrupt, if I could, to make
4 a suggestion. We have been at it for just
5 about exactly about two hours and it would
6 appear that you've got at least a few more
7 questions along this line.

8 Why don't we take a break?
9 I suspect, without surveying, that the
10 people would appreciate a chance to grab
11 something to eat or drink. Let's resume
12 here at 1:15. We can take up the questions
13 that you had been preparing to ask next
14 and, of course, check with Ms. Dexter on
15 behalf of the Environmental Groups. I
16 believe Ms. Manning had indicated she may
17 have some follow-ups. We can resume then
18 at 1:15, of course, right here.

19 (Whereupon, after a
20 short break was had, the
21 following proceedings
22 were held accordingly.)

23 HEARING OFFICER FOX: Thank you
24 everyone for returning promptly from our lunch

1 break.

2 When we did break in order to
3 have some time for lunch, Ms. Olson, on behalf of
4 the Agency, was asking questions of Mr. Panno and
5 we appreciate your willingness to respond to those.

6 I think, Ms. Olson, we
7 need to do nothing more than turn it back over to
8 you to resume the questions that you were asking
9 before we took our break.

10 BY MS. OLSON:

11 Q. Thank you. I believe when we left
12 off, we are testifying that -- you were giving
13 us examples of land applying, I believe, at a
14 rate of a half inch. Can you explain that again?

15 A. Your question, I believe, was at what
16 rate would it be acceptable for ten inches of soil
17 or something like that or at what rate would you
18 expect bacteria to go through ten inches of soil or
19 something along those lines.

20 And my response is we have no
21 data to come up with an application based on how
22 much bacteria is going to get into the underlying
23 aquifers. I'm only to say that the presence of
24 macropores, gravel, soils, once the liquid is going

1 in, the liquid manure going through those would not
2 be affected by any biological or chemical
3 degradation. You would expect from going through
4 soil that was basically a matrix. It would be going
5 through -- it would be more of a flow through than a
6 matrix flow into the underlying aquifer.

7 Q. Let me back up. I believe the
8 question I had asked previously was asking whether
9 or not it would matter if it didn't rain regarding
10 rapid recharge.

11 A. Oh, okay. I'm sorry. I forgot that.

12 Q. And you were giving me an example
13 if you applied a half inch of livestock waste to
14 a field.

15 A. Right.

16 Q. And then I cannot remember what you
17 were going to say about rapid recharge and applying
18 a half inch.

19 A. Well, if you look at applying liquid
20 waste as an analog to experiments Don Keefer did
21 with tracers, it's -- I know they applied the
22 equivalent of a half an inch of rain on a trace
23 where they applied tracers within 15 feet or so of
24 the tile drain where they saw the tracers going into

1 the tile drain very quickly, a matter of -- less
2 than an hour, I believe, but there was no bacterial
3 component to that. So in that respect, we have no
4 data on that.

5 Q. Do you know whether applying a half
6 inch of livestock waste to the field would be
7 applying at the agronomic rate?

8 A. Offhand, I don't know.

9 Q. In your recommendation, you state
10 that 50 feet of unconsolidated materials of karst
11 aquifers is necessary for protection. When you
12 say necessary for protection, are you saying
13 necessary for protecting against the siting of a
14 lagoon?

15 A. Well, the -- by protection, I mean
16 the likelihood of a sinkhole formation in overburden
17 or unconsolidated materials greater than 50 feet is
18 low. If you have at least 50 feet of unconsolidated
19 material overlying a karst aquifer, it's unlikely
20 you're going to get a sinkhole formation.

21 And in that respect if you
22 have a waste lagoon sitting on less than 50 feet
23 of material overlying a karst aquifer, there is
24 a likelihood of getting a sinkhole forming under

1 that lagoon.

2 Q. Does that have to do with the weight
3 of that lagoon?

4 A. It has to do with land use changes.
5 Land use changes generally aggravate sinkhole
6 formation. So, for example, if there were the
7 seepage through the lagoon that might create
8 pathways, that eventually would get down and
9 enlarge -- or a crevice will then form a sinkhole.

10 Q. Would you agree that using land
11 for a lagoon that looked like stock waste is a
12 different use than using land to apply livestock
13 waste for nutrients?

14 A. It is a different use, yeah.

15 Q. And can you comment on whether
16 placing a lagoon over karst aquifers is more
17 likely to create sinkholes versus land applying?

18 A. The land applying would result
19 in the -- you know, everything I have said
20 focuses on the likelihood of sinkhole formation
21 or pathways to the underlying aquifer. So what
22 I think you're trying to say is would it be
23 possible to put a lagoon in an area with less
24 than 50 feet of underlying material? Is that

1 what you're asking?

2 Q. I'm asking whether or not the same
3 level of protection is needed for a lagoon versus
4 land applying.

5 A. It just depends on the lagoon. As
6 I'm aware, for karst areas, it's required that the
7 lagoons are constructed with reinforced concrete, if
8 I'm not mistaken. And for non-karst areas, it only
9 requires something like two feet of compacted
10 clay-rich material, clay-rich liner, if you will.

11 And so if you have -- basically,
12 if you have a bathtub of concrete holding your
13 waste, you know, it's not going to leak into the
14 aquifer if it maintains its integrity.

15 Q. Does the lagoon itself place any
16 pressure on the underlying aquifer or bedrock,
17 which would increase the formation of karst
18 features?

19 A. It might.

20 Q. And would that same risk be there
21 for land applying?

22 A. Probably not.

23 Q. In your testimony, you state that
24 proposed Section 502.620(j) is not adequately

1 protective. Can you tell me what application rate
2 would be sufficiently protective, whether it's
3 less than 20 inches of unconsolidated material
4 of the bedrock?

5 A. My testimony focused on -- the
6 intent was to focus on the thickness of the
7 material, not the application. So, you know,
8 as far as application rate, I really can't address
9 that.

10 Q. Is it your testimony that over all
11 bedrock, 20 inches of unconsolidated material,
12 would not be not protective?

13 A. When you say "over all bedrock," are
14 you saying over all karst?

15 Q. No. Section 502.620 does not make a
16 distinction between karst or non-karst bedrock or
17 fractured or non-fractured bedrock?

18 A. Yes.

19 Q. So as it currently states, it's
20 talking about all bedrock?

21 A. Some bedrock would be better than
22 others.

23 Q. It is your testimony that land
24 application on areas with less than 20 inches

1 of unconsolidated material over bedrock when the
2 land application rate is greater than 50 percent
3 is not protective?

4 A. It's not as protective for karst
5 aquifers or karst bedrock. That was the intent
6 of my testimony.

7 Q. Can you put a percentage on how often
8 a karst terrain is not obvious on the surface?

9 A. I'd have to think about that. I
10 could give you examples. In southwestern Illinois,
11 some areas, as I mentioned earlier, have over 100
12 sinkholes and these are really large sinkholes,
13 hundreds of feet in diameter per square kilometer,
14 and in other parts of southwestern Illinois, even
15 though the bedrock is karstified, there are a lot
16 fewer sinkholes, maybe a handful in a very large
17 area. And the reason being is some of these areas
18 have thicker soil, thicker overburden over the
19 bedrock or they are along a groundwater divide
20 where the water table is up into the sediment.

21 Q. From your experience, can you tell
22 me the percentage of karst terrain that is not
23 obvious from the surface that's in Jo Daviess
24 County?

1 A. So when you say "percentage," are
2 you looking aerially for the entire county?

3 Q. Of the karst terrain in Jo Daviess
4 County, can you tell me what percent is visibly
5 karst from the surface?

6 A. From the surface?

7 Q. Yes.

8 A. I'd say a very small percentage.

9 Q. And how would one know that they
10 are land applying on the karst terrain?

11 A. Well, that's a good question. You
12 would have to look at outcrops, road cuts, quarries
13 and if you did, you would notice crevices that were
14 feet wide and you would look at the thin soils.
15 We looked at -- to do it, you would have to look
16 at the thickness of the soils in the areas where
17 you are going to land apply. You would have to do
18 aerial photography, liDAR imagery to see those
19 sinkholes that are there.

20 Q. And what is your estimate of the cost
21 to determine whether or not the area that you are
22 land applying on is karst terrain when it's not
23 visible from the surface?

24 A. To do that, you would have to hire

1 a consultant, and I don't know what the cost of a
2 consultant would be to do that sort of thing.

3 Q. Would a prohibition on land
4 application of livestock waste within 100 feet
5 of a sinkhole be adequately protective of
6 groundwater?

7 A. It's doubtful. And the reason being
8 a sinkhole is not -- while it's a vector -- while
9 it's a focal point for a recharge into the aquifer,
10 it's not the only means by which the recharge can
11 get into the aquifer. As I mentioned, sinkholes
12 come and go. So if you go out and say, okay, we
13 have one sinkhole, don't apply there, another
14 sinkhole can appear or many sinkholes can appear
15 in the area, but you may or may not see them.

16 Q. So if I understand what you are
17 saying, if I hired you and told you to study
18 land apply on my field, I could not rely on
19 those results because sinkholes can form from
20 year-to-year. So I would have to go out and
21 get multiple studies done every year to see
22 if I can land apply; is that correct?

23 A. No.

24 Q. And why not?

1 A. Because sinkholes are not the end all
2 indicator of karst aquifers and karst terrain.
3 So, you know, if you say, okay, let's focus on
4 sinkholes as the bellwether to -- you know, for
5 our area to say, you know, we can apply or not
6 apply, it's not a good indicator. It's one of
7 many indicators, and you need to look at all of
8 them.

9 Q. Would you agree that a hundred plus
10 setback would reduce the amount of pollutants
11 reaching the karst aquifer?

12 A. It depends. It depends on the
13 thickness, the type of the soil, the size of
14 the sinkhole. I mean, you know, if you had --
15 if you developed a conceptual model and said,
16 okay, sinkhole A is the only vector into the
17 underground and then putting a border around
18 that and saying, okay, don't apply anywhere near
19 that would keep materials from washing into that
20 sinkhole from probably into the underground;
21 however, you're ignoring other features like
22 macropores, the possibility of sinkholes opening
23 up that you're not aware of or somebody -- sinkholes
24 opening up and getting covered over and they still,

1 because of the nature of the cover, are the more
2 permeable than the adjacent ground because it's more
3 of a collapse feature and you have soil peds up
4 against each other. So you have pathways.

5 Q. Would a sinkhole be caused by land
6 application?

7 A. Would it be caused by land
8 application?

9 Q. Yes.

10 A. Probably not.

11 Q. Would a sinkhole be caused by a
12 lagoon?

13 A. Possibly. I have seen lagoons
14 collapse.

15 Q. In your testimony, you provide
16 a link to an internet page that talks about
17 crop lines; is that correct?

18 A. That's correct.

19 Q. I'm going to pass what I'm marking
20 as Exhibit 23.

21 (Document marked as
22 Agency Exhibit No. 23
23 for identification,
24 10-30-2012.)

1 BY MS. OLSON:

2 Q. If you could, Mr. Panno, lets take a
3 look at what has been marked as Exhibit 23.

4 (Document tendered
5 to the witness.)

6 BY THE WITNESS:

7 A. Okay.

8 BY MS. OLSON:

9 Q. Mr. Panno, is this the printout
10 of the internet page that you reference in your
11 testimony?

12 A. Yes, it is.

13 MS. OLSON: I'd like to move this
14 into the record at this time.

15 HEARING OFFICER FOX: Hearing Ms.
16 Olson's motion on behalf of the Agency to admit the
17 document entitled "Drought Induced Crop Lines in
18 the Driftless Area of Northwestern Illinois," into
19 the record as Exhibit 23. Is there any objection?

20 Neither seeing nor hearing any,
21 Ms. Olson, it will be marked and entered into the
22 record as Exhibit No. 23 in this proceeding. Thank
23 you.

24 (Agency's Exhibit

1 you see in an extreme draught. So the land is
2 very dry and so as we walked the fields, the
3 alfalfa that make up these lines were several
4 feet wide up, and in some cases, several feet
5 high, and then the ground adjacent was almost
6 barren.

7 So this gives us this, plus
8 road cuts, and looking at soil thickness, gives
9 us a three-dimensional view of what the -- what
10 the creviced aquifer looks like.

11 Q. So, okay, if I understand what
12 you're saying, the brown areas don't have crevices;
13 is that right?

14 A. That's correct.

15 Q. So is it safe to assume that
16 those brown areas don't have what you're calling
17 secondary porosity?

18 A. Well, they have fractures. It's
19 not showing up in the photographs as very tiny
20 fractures, but there is secondary porosity there
21 probably, yeah. Like, to say absolutely there's
22 no secondary porosity, I can't do that. But
23 given my experience with this rock, yeah.

24 Q. But the green areas are the areas

1 where there's large crevices?

2 A. That's correct.

3 Q. And from your experience, do most
4 areas that you consider karst have large crevices
5 as displayed in Figure 2?

6 A. It varies. The crevices in Figure 2
7 are characteristic of karst in Galena, Illinois.
8 In southwestern Illinois and the St. Louis limestone
9 we see similar crevices and bedding planes that have
10 been dissolved.

11 So it's -- it's a much -- you
12 know, there is more dissolution because you're
13 looking at the difference between limestone and
14 dolomite. So we see bigger crevices, bigger
15 conduits, caves, and that sort of thing.

16 Figure 3 is characteristic of
17 the karst that we see up in the north, northwest
18 and in Galena, Illinois.

19 Q. And from looking at these pictures,
20 do you need additional information to determine
21 karst is present?

22 A. I'm not sure what you mean. Do you
23 mean if you were setting up a CAFOs or something
24 and you wanted to say yes or no, there is karst

1 present or not present?

2 Q. Yes. If I walked up to you today
3 and you've never seen this picture before and I hand
4 it to you and I say, can you tell me whether or
5 not there's karst present, would you be able to
6 answer that just by looking at the picture?

7 A. Let me think. Which one, both of
8 them? Because, yeah, if you looked at both of
9 them, yes.

10 Q. What about Figure 2?

11 A. Just Figure 2?

12 Q. Correct.

13 A. Are you talking about me or just
14 anybody?

15 Q. You.

16 A. Well, having had a lot of experience
17 up there, I can say, yeah, that's karst. That's
18 what it looks like. We see the same type of feature
19 up in Wisconsin where you see the crops line up with
20 the fractures, et cetera.

21 Q. Did you do a geological survey for
22 these pictures?

23 A. We're in the process of analyzing
24 aerial photography from 16 different locations

1 in Jo Daviess County that I flew and photographed
2 with a private pilot. The Illinois Department of
3 Transportation flew the same areas that we outlined
4 with a belly-mounted camera that we are currently
5 taking those photographs and georeferencing onto
6 maps.

7 Q. Did you do any soil samples in regards
8 to photographs similar to this one?

9 A. No, we haven't. No. We still have
10 to go up and do additional work.

11 Q. Do you know whether the soil in the
12 ground area is the same as the soil in the green
13 areas?

14 A. I would think it would be the same,
15 but I don't know that for a fact.

16 Q. And that's because you haven't
17 surveyed these fields?

18 A. I'm not a soil scientist. So
19 actually we worked with some people with -- I'm
20 trying to remember who they were with. It was a
21 state agency that went up and looked at this area
22 and looked at the soil, took some cords, and
23 they're looking at the soil. Judging -- you know,
24 I mean, given the way soils form, I can't imagine

1 that -- are you talking about the soil between the
2 green areas and the brown areas?

3 Q. Yes, sir.

4 A. Yeah. I can't imagine it's a process
5 that would give you this type of distribution of
6 different soils.

7 Q. But you don't know for sure?

8 A. No, I don't. I'm not a soil
9 scientist.

10 Q. Let me move on to the last area that
11 I have, which is macropores. You have mentioned
12 macropores repeatedly throughout your testimony.

13 A. Yes, ma'am.

14 Q. I just kind of want to understand what
15 they are. What size is too small to be considered a
16 macropore?

17 A. In centimeters, millimeters, is that
18 the kind of thing you are looking for?

19 Q. Preferably. A tangible example
20 would be someone like me that doesn't have any
21 science background.

22 A. I understand. It would probably be
23 based on our observations in the field. It would
24 be a couple millimeters and that would constitute

1 a macropore.

2 Q. In diameter or length?

3 A. In width. In length, some of the
4 macropores we've seen extend for tens of feet.
5 You can almost -- I mean, several inches wide.
6 So they can be really large or the smaller ones
7 tend to be part of a matrix of fractures.

8 Q. I'm going to back up for a second.
9 You said that they can be fairly large?

10 A. Yes.

11 Q. Are you speaking in terms of
12 millimeters or large in terms of feet?

13 A. Large as in terms of an inch or two
14 wide and tens of feet long.

15 Q. So they can go from a couple
16 millimeters wide to a few inches wide?

17 A. Yes, ma'am.

18 Q. And would you say that there is
19 a length that is too short to be considered a
20 macropore?

21 A. I mean, it's usually longer than
22 it is wide obviously. You know, as to -- you
23 have to have hard evidence. What's too short
24 for a macropore, I don't have a number for that.

1 Q. Are you familiar with the proposal
2 that was submitted by the Environmental Groups'
3 defining macropore?

4 A. No, I'm not.

5 Q. What is your professional opinion
6 of a definition of a macropore as follows: Any
7 pore that allows free drainage the depth of
8 the subsurface drain?

9 A. The subsurface drain meaning a tile
10 draining?

11 Q. I'm assuming so, yes.

12 A. Yeah. So you're basing or they're
13 basing that definition on an agricultural field
14 that's tile drained.

15 Q. Correct.

16 A. For regulatory purposes, you know,
17 and in looking at what might get down into a tile
18 drain, that seems adequate.

19 Q. Do you believe there should be a
20 size limitation placed on the definition of a
21 macropore?

22 A. Sure, probably.

23 Q. So if these macropores could only
24 be a couple millimeters wide, I'm just curious

1 whether or not somebody walking across their
2 field would be able to see them as they walk
3 across the field.

4 A. You know, when we walk the fields
5 for these photographs, I could see them everywhere.
6 You know, they are usually not tiny and only tiny.
7 You have a distribution. So you have large ones
8 and then a lot more smaller ones. You know, for
9 soils that are wet and dry, that go through wet
10 and dry cycling, I don't think you would have a
11 very difficult time finding macropores in your
12 fields.

13 Q. In your opinion, as macropore is
14 defined in the environmental proposal, could a
15 person see the smallest possible macropore with
16 a blind eye as walking over the field?

17 A. Probably not.

18 Q. How long do you think it would
19 take to determine whether your field is
20 macropore-free?

21 A. I think if you're concerned about
22 the groundwater, you would assume that the soil
23 is going to have macropores unless you have some
24 sort of soil that doesn't form macropores.

1 Q. And what type of soil would that be?

2 A. You know, I don't know.

3 Q. Can you tell how far a macropore
4 extends into the soil by looking at it from the
5 surface?

6 A. The only experience i have is, you
7 know, we took yard sticks down and the wider ones
8 were, you know, maybe an inch or so wide. They
9 extend down at least six feet and I guess we had
10 something wrong with the yard stick, but excavations
11 by Don Keefer at the State Geological Survey had --
12 did bromide dye traces where he actually dumped dyes
13 on the surface and then he excavated down to
14 15 feet. They saw the desiccation fractures. The
15 largest was going down at least six feet and root
16 casts were going down 15 feet.

17 Q. So if I understand your testimony
18 correctly, you'd either have to use a measuring
19 device and/or possibly dying the fields to determine
20 the length and the depth of these --

21 A. No, no. You wouldn't have to repeat
22 the experiment every time.

23 Q. Initially?

24 A. Pardon me?

1 Q. Initially to determine if your field
2 has macropores at a depth?

3 A. I think it would be -- if the -- it
4 would be conservative or it would be appropriate
5 to take a conservative approach and say, okay,
6 there's cracks in the ground and this research has
7 shown that they extend down 6 to 15 feet and, you
8 know, we're probably there.

9 Q. You stated that tillage can
10 enhance recharge and this was in the discussion
11 of macropores when Ms. Manning was asking you
12 questions?

13 A. Yes.

14 Q. Can you explain that statement?

15 A. Sure. If you break up the soil,
16 you create soil peds or soil contacts that are
17 more permeable than, say, undisturbed soil and
18 that's regardless of -- you say, okay, now ignore
19 the macropores. You know, if you break up the
20 soil, it makes the upper foot or however much it's
21 broke up that much more permeable.

22 Q. What is your opinion on the dangers
23 of land applying on a field of macropores or a field
24 that has been freshly tilled? Is one greater than

1 the other or are they equal?

2 A. If you have a field with no
3 macropores, is that what you're getting at?

4 Q. Actually, I'm assuming that you have
5 a field of macropores.

6 A. Okay.

7 Q. And you're going to land apply liquid
8 waste.

9 A. Yes.

10 Q. Is it --

11 A. Okay. I understand your question.

12 Q. It's more likely to recharge?

13 A. I think they would be done the same.
14 I mean, breaking it up -- if you had really thin
15 soil, breaking up the soil would provide a lot
16 more pathways to the bedrock.

17 Q. So that would be -- in that example,
18 if I understand what you're saying, recharging is
19 more likely rapid if you till versus if you didn't
20 till that field?

21 A. It depends on the thickness of the
22 soil. So if you're -- if you don't till and you
23 have macropores that go down 6 feet to 15 feet, you
24 know, if you till the surface, it's probably not

1 going to be much of a difference.

2 Q. Okay. Thank you for answering all
3 of my questions. I appreciate it.

4 A. Thank you.

5 HEARING OFFICER FOX: Ms. Olson,
6 it sounds like you've completed yours.
7 Ms. Dexter, did you have follow-up questions
8 for Mr. Panno?

9 MS. DEXTER: Yes.

10 C R O S S - E X A M I N A T I O N

11 by Ms. Dexter

12 Q. Good afternoon. I'm Jessica Dexter
13 with Environmental Law and Policy Center speaking
14 on behalf of the Environmental Groups.

15 In your testimony, you say in
16 a karst terrain, two feet of unconsolidated sediment
17 provides little protection for the underlying karst
18 aquifer from surface-borne contaminants like nitrate
19 and enteric bacteria. To put that into simpler
20 terms, do you agree that one of the important policy
21 considerations is for the potential for
22 contaminating drinking water with nitrates and
23 disease causing bacteria from manure?

24 A. I'm sorry. Can you repeat that

1 question?

2 Q. Do you agree that one of the
3 important policy considerations is the potential
4 for contaminating drinking water with nitrates
5 and disease causing bacteria from manure?

6 A. Yes.

7 Q. Thank you. Have you ever studied
8 groundwater contamination from agricultural sources
9 in a karst area?

10 A. Yes.

11 Q. Do you have examples?

12 A. Do I have examples?

13 Q. Yes.

14 A. Yeah. We've looked at agricultural
15 inputs to the groundwater in karst areas in
16 southwestern Illinois, northern Illinois,
17 Northwestern Illinois, Wisconsin, Missouri,
18 Kentucky. I think that's it. What we generally
19 do is collect groundwater samples from springs
20 and wells -- private wells, municipal wells, and
21 analyze those for full chemistry and chemical
22 composition and bacterial indicators and in some
23 cases, bacterial species.

24 One of the studies using bacteria

1 was headed by a colleague of mine, Walt Kelly, of
2 the Illinois State Water Survey. We were able to
3 look at halide ratios, chloride bromide ratios, and
4 nitrate and other indicators, boron, and separate
5 the bacteria -- I'm sorry -- the contamination --
6 the chloride contamination from animal waste, human
7 waste.

8 Let's see. What else? I think
9 that was pretty much it. We were able to identify
10 pristine or relatively pristine groundwater and
11 then related that to the bacteria or bacterial
12 species that was staying in the water samples.

13 Q. So your study concluded wells that
14 had been contaminated by livestock waste?

15 A. Some had, yes.

16 Q. Thank you. We talked about this
17 a bit this morning, but I just want to be clear.
18 Is it your position that in order to protect
19 current aquifers, land application of liquid
20 waste in karst areas with less than 50 feet of
21 unconsolidated material should be prohibited?

22 A. That's correct.

23 Q. Thank you. In your testimony,
24 you stated that the changes proposed in

1 Section 502.620(h) are not sufficiently protective
2 of groundwater and surface water. This section
3 prohibits the application of liquid waste on land
4 with less than ten inches of soil covering fractured
5 bedrock, sand or gravel. Are you suggesting ten
6 inches, in this instance, should be replaced by
7 50 feet?

8 A. Yes.

9 Q. Can there be fractured bedrock, sand
10 or gravel in areas that are not shaded gray in
11 Figure 1 of your pre-filed testimony?

12 A. There are. And I think in Will County
13 we see areas like that. Of course, we haven't
14 completed our studies in those areas. So as far
15 as definitively stating yes, I can't do that, but
16 I can say that, you know, we might see some.

17 Q. Switching gears slightly, in your
18 testimony, you recommend that large CAFOs not be
19 constructed in karst areas of the state. Do you
20 think manure stock piles without an impermeable
21 pad and cover should be prohibited in these areas?

22 A. Yeah. If you are dealing with an
23 impermeable cover, the seepage would go down into
24 the karst aquifer. So in that respect, I would

1 say it would not be a safe thing to do as far as
2 water quality goes.

3 Q. Thank you. And finally, in your
4 testimony, you stated macropores, (for example,
5 desiccation cracks, worm holes, root channels)
6 within the unconsolidated sediment extend several
7 meters into the soil zone and can allow contaminated
8 surface water to quickly bypass the soil zone
9 and rapidly enter the underlying aquifer with
10 little or no change. How common are these
11 macropores? I know we talked about it a little
12 bit.

13 A. We see them basically everywhere we
14 do our studies. Even thin soils or thick soils,
15 they're always present. In southwestern Illinois,
16 we were collecting water samples and we were next
17 to some macropores and we had a hose running for
18 maybe half an hour in one right next to us and the
19 water was going down the macropore. It never
20 filled. I mean, it just went straight through. The
21 soil zone was probably 20 feet thick in that area.
22 So it either went down and got diverted off
23 somewhere or it went straight into bedrock, but we
24 see them everywhere we go and so in that respect,

1 yeah. I think it would be unusual if the soil
2 didn't have them.

3 Q. Can macropores develop in farm fields
4 even without karst aquifers?

5 A. Yes.

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

7 HEARING OFFICER FOX: Very good.

8 Thank you, Ms. Dexter.

9 Ms. Manning, I believe you
10 had indicated the possibility of some
11 follow-ups.

12 MS. MANNING: I have a follow-ups on
13 that line of questions.

14 R E D I R E C T E X A M I N A T I O N

15 by Ms. Manning

16 Q. So basically, Mr. Panno, you are
17 testifying, as I understand it, macropores are
18 everywhere in Illinois. You have defined them
19 to be very small and they are present in all
20 soils in Illinois?

21 A. I can't say that definitively. I'm
22 saying that everywhere we've done work, we've seen
23 macropores and we've done work all over the state.

24 Q. And you're testifying to the Board

1 that there should be no land application in or
2 around a macropore?

3 A. No, I didn't say that. I was
4 focusing on CAFOs in karst areas and the macropores
5 I'm testifying are a vector or are a pathway to
6 the underling karst aquifer where you have soils
7 relatively thin.

8 Q. And I believe your last question to
9 Ms. Dexter was that it was not protective to land
10 application over a macropore?

11 A. In a karst area.

12 MS. DEXTER: I didn't ask that
13 question. You are mischaracterizing the
14 question I asked.

15 MS. MANNING: That's all I have right
16 now.

17 HEARING OFFICER FOX: Very good.
18 Ms. Olson, if I'm understanding you correct,
19 please go ahead with your follow-up.

20 MS. OLSON: I just have a few
21 questions.

22 R E C R O S S - E X A M I N A T I O N
23 by Ms. Olson

24 Q. Ms. Dexter asked you whether or

1 not the Agency's proposal should be changed. If
2 it was changed to 50 inches of soil covering
3 fractured bedrock and gravel, and you answered
4 yes; is that correct?

5 A. You meant feet?

6 Q. I'm sorry. Feet.

7 A. Yeah. It was -- I don't recall sand
8 and gravel being an integral part of it, but
9 if that was the case, sand and gravel would tend
10 to filter out quite a bit.

11 Q. So would 50 feet be necessary over
12 sand and gravel?

13 A. Sand and gravel tends to plug up the
14 crevices to the point where you don't get sinkhole
15 formation. So it might be there is -- the good
16 news is sand and gravel probably wouldn't form
17 sinkholes. The bad news is that nutrients go
18 through sand and gravel. You know, nitrates,
19 potassium, they go through sand and gravel very
20 quickly and very little change, you know,
21 denitrification, and as far as bacteria, the
22 bacteria might be filtered down.

23 Q. Do you have an opinion as to whether
24 50 feet is the minimum required to be adequately

1 protective over sand and gravel?

2 A. Over sand and gravel?

3 Q. Yes.

4 A. Well, 50 feet was the number I used
5 because it was the thickness where sinkholes could
6 be developed. And, therefore, it has no -- it
7 really doesn't apply to the sand and gravel
8 situation.

9 Q. Okay. What is your opinion as to
10 50 feet over fractured bedrock, and it's not karst,
11 but is 50 feet required to be protective of
12 groundwater?

13 A. If it's not karst?

14 Q. If it's not karst.

15 A. No.

16 Q. Are you aware of a definition
17 of macropore by the Soil Science Society of America?

18 A. Not offhand, no.

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

20 HEARING OFFICER FOX: Thank you,

21 Ms. Olson.

22 MR RAO: I have just a follow-up.

23 HEARING OFFICER FOX: Mr. Rao, from
24 the Board, has a follow-up, Mr. Panno, if you

1 would respond to that, please.

2 C R O S S - E X A M I N A T I O N

3 by Mr. Rao

4 Q. Mr. Panno, are you aware of
5 restrictions proposed by Environmental Groups
6 for land applying livestock waste to land with
7 subsurface drainage and macropores present in
8 the soil?

9 A. By subsurface draining, do you mean
10 like tile draining?

11 Q. Yes. I'll read the requirement. It
12 states that liquid livestock waste shall not be
13 applied to land with subsurface drainage when
14 macropores are present. That's the restriction
15 that's been proposed. Earlier, you stated that
16 you have encountered macropores in most soils
17 that you have looked at in the state?

18 A. Yes. I have. I have seen it.

19 Q. So would this kind of a restriction
20 pretty much eliminate land application of waste in
21 soils as long as there is some type of subsurface
22 drainage?

23 A. You probably wouldn't see macropores
24 in sandy soils, but if you go strictly by the fact

1 that the macropores would allow untreated or
2 unmitigated -- not mitigated -- I used the wrong
3 word -- unattenuated waste to get into the
4 subsurface and into a tile drain, yeah, you could.
5 But it's not going to groundwater. It's going to
6 surface water. So I don't know.

7 You want to know my opinion as to
8 whether or not that should --

9 Q. Yes.

10 A. I have no opinion at this point. I'm
11 focusing on karst.

12 Q. Also earlier, when the Agency asked
13 you questions about the definition of macropore,
14 you mentioned it can be as small as a millimeter.

15 A. Okay.

16 Q. Have you seen any definitions where
17 the actual minimum size specifications for macropore
18 are larger than that?

19 A. I don't recall the definition of
20 macropore offhand, but we can see fractures in
21 the soil several millimeters wide, but as I said,
22 they are usually associated with larger macropores.
23 So it's usually a network and, you know, at some
24 times during the year, you go out and there's no

1 macropores and then things dry out. Clays contract
2 and you see macropores.

3 You know, if you try to divorce
4 the large macropores from the couple millimeter wide
5 fractures, you know, I'm not sure you know, where --
6 what you could do with that information.

7 Q. I was just wondering from a regulatory
8 standpoint, how you implement a requirement like
9 this.

10 A. Yeah. I've worked with Don Keefer
11 at the State Geological Survey and he's an expert
12 on macropores and he would be a better one for you
13 to ask.

14 Q. Do you think he would be able to
15 come to Jo Daviess?

16 A. I'll ask him.

17 Q. Thank you.

18 HEARING OFFICER FOX: Ms. Manning,
19 Ms. Olson, Ms. Dexter, any further follow-up
20 questions for Mr. Panno?

21 MS. MANNING: No.

22 HEARING OFFICER FOX: Mr. Panno,
23 thank you for your time today.

24 It's appreciated on the Board's part, and we

1 can let you go, again, with thanks for all
2 of your time and testimony today.

3 MR. PANNO: Thank you very much.

4 HEARING OFFICER FOX: Based on our
5 discussion earlier in the course of the
6 hearings, we're prepared, Ms. Dexter, to
7 turn to the pre-filed testimony by Dr. James,
8 Dr. Thu and Mr. Leder.

9 What I think might be helpful,
10 rather than leaving Dr. Thu stranded back in
11 the audience, is if we bring him forward
12 where he would have a microphone and a desk.

13 As I suggested at the beginning
14 of the day, I think it would make sense,
15 Ms. Dexter, to swear all of them in since
16 there are some interrelationships between
17 their pre-filed testimony so that they're
18 all prepared from the start to answer whatever
19 questions may arise. Does that make sense?

20 MS. DEXTER: That makes sense. And
21 I think that if you will allow them to make
22 summaries, we will go in the order of Mr. Leder,
23 Dr. Thu and Dr. James.

24 HEARING OFFICER FOX: Yes. Their

1 pre-filed testimony is entered into the record
2 as if read, but if there's a brief summary
3 that they would like to offer, that certainly
4 would not be out of order and we can begin
5 with those.

6 As we had discussed at the top
7 of the day, we will begin with questions on
8 the part of the Agricultural Coalition and
9 then we can turn to the Agency and then answer,
10 if any, follow-ups as well. So why don't we
11 start by swearing in those three witnesses
12 whenever the court reporter is ready.

13 (Witnesses sworn.)

14 HEARING OFFICER FOX: Ms. Dexter,
15 you have three witnesses sworn in. Is there
16 a particular order in which you'd like to
17 begin statements or would one statement on
18 the part of one of them suffice?

19 MS. DEXTER: I think we'll start with
20 Mr. Leder. They will each have a statement.

21 HEARING OFFICER FOX: Mr. Leder, I can
22 see we might have an issue. You might want to
23 raise the microphone so it's easier to lean into
24 and let it pick up your voice.

1 MR. LEDER: My name is Arnold Leder,
2 L-E-D-E-R. I'm a resident of LaSalle County. I've
3 worked for 34 years as an enforcement officer for
4 the United States Environmental Protection Agency.
5 I retired six years ago from the Agency, but when
6 I was there for the last two years, I was a CAFOs
7 enforcement program manager.

8 In that capacity, as part of my
9 responsibilities, I was involved in developing --
10 helping to develop the national CAFOs regulations,
11 update the work with training state and federal
12 CAFOs inspectors, and also was involved in reviewing
13 a number of state programs where the states were
14 not carrying out their NPDES enforcement or
15 permitting authority for NPDES permits for CAFOs.

16 In Region 5, Wisconsin and
17 Minnesota had always issued NPDES permits for CAFOs.
18 If Michigan, Indiana, Ohio and Illinois were not
19 issuing NPDES permits for CAFOs and Illinois is --
20 most of the other states have gone through this,
21 but we've not gone through federal program reviews,
22 which I participated in, and as a result of those
23 reviews, they began implementing NPDES permits for
24 CAFOs. Illinois is currently under federal review

1 and is asking IEPA to adopt regulations which are
2 consistent with federal requirements and I think
3 that's why we're here today with these proposed
4 regulations.

5 In my testimony, I tried to
6 discuss some of the problems I've seen in conducting
7 inspections with CAFOs. I looked at issues like
8 problems we've seen with surface application,
9 particularly on frozen and snow covered ground.

10 We have looked at -- I've
11 discussed production area siting setbacks from
12 surface waters and the importance there, technical
13 standards of EPA land requirements for all CAFOs.
14 One of the things that I worked on was developing
15 the national CAFOs strategy with U.S. Department
16 of Agriculture and U.S. Environmental Protection
17 Agency. In that strategy, it sets out a principle
18 that all CAFOs should have comprehensive management
19 plans.

20 Just to go into my conclusion,
21 I find in my experience that livestock operations
22 pose considerable risks to water quality. Poor
23 production area management, bad land application
24 techniques, and inadequate waste storage capacity

1 are frequent causes of livestock waste discharging
2 into waters of the state. This rulemaking provides
3 The state of Illinois with an important opportunity
4 to reduce water pollution from CAFOs by adopting
5 strong regulations that apply to all CAFOs.
6 Simultaneous with the need for good technical
7 standards is the need for a comprehensive inventory
8 of CAFOs so that their locations and so that
9 discharges can be identified.

10 MS. DEXTER: And next, we'll have
11 Dr. Thu.

12 DR. THU: My name is Dr. Kendall Thu.
13 I'm a professor here at Northern Illinois
14 University. I'm also a cofounder of the Illinois
15 Citizens for Clean Air and Water.

16 I want to welcome the Board
17 members to DeKalb and I appreciate the opportunity
18 to provide a brief summary statement here.

19 I have approximately 20 years of
20 experience conducting research on concentrated
21 animal feeding operations, and I'm offering
22 testimony on behalf of the environmental groups.
23 Specifically, my testimony is on the need for a
24 registration program for large CAFOs in Illinois to

1 identify how many there are, where they're located
2 and whether they should be prioritized for
3 investigation or subject to NPDES requirements.

4 In 2008, the United States
5 Government Accountability Office released a report
6 that found U.S. EPA's data for regulating CAFOs is
7 "inconsistent, inaccurate, and do not provide
8 necessary information on their characteristics."
9 It was also found that "without a systematic and
10 coordinated process for collecting and maintaining
11 accurate and complete information on the number,
12 the size, and location of permitted CAFOs, EPA does
13 not have the information that it needs to
14 effectively regulate them."

15 The situation in Illinois
16 reflects the GAO's report on the state level. No
17 one in or outside the State of Illinois knows how
18 many large CAFOs there are, nor do they know where
19 they are located, let alone the water pollution
20 risks many of them pose. The photos behind me are
21 submitted in evidence -- these are the same photos
22 that were submitted in my pre-filing of my
23 testimony. These photos indicate the kind of
24 evidence of discharges that we can collect when we

1 know where the CAFO is located.

2 If the Illinois EPA had a
3 registry of large CAFOs with adequate information
4 about their operations, this sort of flyover
5 exercise would be less necessary, and it would be
6 easier to identify problem facilities. In 2008,
7 ICCAW filed a petition to the USEPA to withdraw the
8 state's authority to administer the Clean Water Act
9 NPDES program. The petition we filed is included
10 in my pre-filed testimony as Attachment 4. USEPA
11 Region 5 conducted an investigation, and in
12 response to the petition found that the Illinois
13 EPA NPDES program for CAFOs did not meet the
14 minimum thresholds for an adequate program.

15 USEPA outlined the steps Illinois
16 is required to take to avoid withdrawal
17 proceedings. The Illinois EPA responded by
18 committing to USEPA that it would require livestock
19 producers to file basic information to the Agency
20 to populate a statewide inventory so that they will
21 be able to prioritize inspections and permitting
22 decisions. This commitment was made to avoid de
23 delegation of the state's authority to administer
24 the NPDES program.

1 The Illinois EPA and the Illinois
2 Pollution Control Board have the responsibility and
3 authority to enact information reporting
4 requirements to ensure proper implementation of the
5 Clean Water Act. Section 403(c)(3) of the Clean
6 Water Act requires the Administrator of the USEPA
7 to withdraw an approved state NPDES program if it
8 is determined that the state is not administering
9 the program with applicable requirements and the
10 state fails to take corrective action.

11 Under the Clean Water Act's NPDES
12 regulations, a state must have a program which is
13 capable of making comprehensive surveys of all
14 facilities. The Illinois EPA's proposed
15 regulations now before the Board fail to meet the
16 commitment to USEPA to enact a registration
17 program. While the Illinois EPA had stated its
18 intent to develop an interim inventory of CAFOs
19 using currently available resources as demonstrated
20 by Illinois EPA's September 20th affidavit
21 submitted in these proceedings, these sources of
22 information are not adequate to develop a
23 comprehensive inventory of CAFOs, and as
24 consequently, will not allow the Agency to evaluate

1 their regulatory compliance.

2 Furthermore, this is intended to
3 be an interim step towards enacting a registration
4 program. A large CAFOs registration program that
5 requires submission of information to the Agency is
6 integral to the proper implementation of the NPDES
7 program in Illinois. Unless and until the EPA has
8 an accounting of all the at large CAFOs in
9 Illinois, and adequate information about their
10 locations and operations are needed to be able to
11 evaluate their compliance with program
12 requirements, the state will fail to meet its
13 obligations under the Clear Water Act.

14 Environmental Groups then are
15 proposing that the following types of
16 information -- this is not a comprehensive list --
17 be submitted including the names and addresses of
18 owners and operators, specific information about
19 the average of actual number of animals, type of
20 waste containment and storage, total number of
21 acres land applied, estimated amount of livestock
22 waste transferred to other persons or third
23 parties, copies of signed contractual agreements
24 with transferees, nutrient management plans and the

1 like.

2 It is simply common sense to have
3 this kind of basic information on CAFOs in order
4 for IEPA to discharge its duty to the Clean Water
5 Act to ensure Illinois citizens have a healthy
6 environment. Thank you.

7 MS. DEXTER: And next we will move on
8 to testimony -- or a summary of testimony from Dr.
9 James.

10 DR. JAMES: Thank you to the Board,
11 to the Agricultural Coalition, to IEPA and to the
12 rest of the audience for this opportunity to
13 present testimony on behalf of the Environmental
14 Groups.

15 My name is Dr. Stacy James, and I
16 am a water resources scientist at Prairie Rivers
17 Network, Illinois statewide river conservation
18 organization and the state affiliate of the
19 National Wildlife Federation. My work focuses on
20 reducing pollution from agricultural lands and
21 confined animal feeding operations through the
22 adoption of protective policies and conservation
23 practices.

24 I was an active member of IEPA's

1 CAFO rulemaking stakeholder work group that formed
2 in 2009 during and after which I reviewed a number
3 of scientific papers and other documents pertinent
4 to the rule. I'm very familiar not only with the
5 IEPA regulations, but also with the Livestock
6 Management Facilities Act or LMFA.

7 While writing my testimony, I
8 presented multiple lines of supporting evidence for
9 changes the environmental groups are seeking.
10 These changes can be found in the proposed
11 amendments submitted to the Board on October 17th,
12 2012. The multiple lines of evidence include IEPA
13 livestock facility inspection reports, IEPA
14 testimony, complaints filed by the Illinois
15 Attorney General's office and associated orders,
16 scientific literature, regulations and
17 recommendations from other states and conversations
18 with affected people. My pre-filed testimony
19 covered six topics, and I will now briefly
20 summarize each.

21 No. 1, currently, livestock
22 operations are not required to have a minimum
23 siting setback from surface waters. There are many
24 livestock operations in Illinois that are located

1 within a few hundred feet of streams and some of
2 these operations have discharged into those
3 streams. Discharges happen for a number of
4 reasons, including inadequate waste storage
5 capacity, unprotected and overflowing waste storage
6 structures, the construction of discreet
7 conveyances to streams, equipment failures, stream
8 flooding and willful acts. We believe there should
9 be a minimum siting setback so that streams are
10 protected from production area discharges.

11 No. 2, in the existing
12 regulations and the proposed rules, livestock
13 operations are required to maintain a 200-foot
14 setback from down-gradient surface waters when land
15 applying waste. There is evidence that this
16 setback distance may not always be protective. It
17 is particularly important that surface water
18 drinking supplies and quality streams be protected
19 from pollution discharges. Therefore, we think
20 there should be an increased setback to protect
21 these waters.

22 No. 3, temporary manure stacks
23 can be quite large or sometimes placed directly on
24 the ground without any protection from storm water

1 and can be significant contributors of polluted
2 runoff. The current and proposed regulations in
3 Part 501 require manure stacks to be constructed
4 and maintained in a manner to prevent runoff and
5 leachate from entering surface waters and
6 groundwater.

7 The proposed regulations stated a
8 cover and pad should be used, quote, "when needed,"
9 end quote, to protect these water resources, but we
10 believe this provides too much latitude for
11 interpretation. Despite existing regulations,
12 manure stacks have frequently been cited by IEPA as
13 pollution sources in their livestock facility
14 investigation report.

15 Realizing there might be
16 situations where having a cover and pad is not
17 feasible, we suggest the facilities should be given
18 a clear choice; either place covered manure stacks
19 on a pad, or comply with minimum setbacks from
20 surface water and groundwater.

21 No. 4, the proposed rule outlines
22 the steps for determining whether livestock waste
23 can be applied at a nitrogen based or a phosphorus
24 based rate. From a water quality perspective, a

1 nitrogen based rate is more risky. The proposed
2 rule states that a soil test phosphorus
3 concentration of 300 pounds per acre is a threshold
4 for switching from nitrogen based to phosphorus
5 based applications.

6 However, the Illinois Agronomy
7 Handbook states that there is no need to apply
8 phosphorus when it reaches approximately 70 pounds
9 per acre. Because there is a positive correlation
10 between the amount of phosphorus in soil and the
11 amount of phosphorus in runoff, we suggest that the
12 threshold should be lower than proposed.

13 No. 5, applying livestock waste
14 on top of frozen, snow covered and ice covered
15 ground increases the risk that land applied waste
16 will not be utilized economically and will runoff
17 into nearby surface waters. The proposed rule is a
18 dramatic improvement over existing regulations
19 found in both the Environmental Protection Act and
20 the LMFA, but the proposed rule does allow surface
21 application of waste in winter conditions.

22 The proposed rule contains a
23 number of required practices that should reduce the
24 chance of a polluted discharge when the weather

1 warms back up. However, missing from the list of
2 practices is a limit on the amount of waste that
3 can be applied. Given higher application rates can
4 lead to higher losses of pollutants, we believe
5 their needs to be a protective limit.

6 And finally, No. 6, the
7 Agricultural Coalition, as well as Dr. Funk, have
8 asked that unpermitted large CAFOs following LMFA
9 waste management plans qualify for the agricultural
10 storm water exemption. While the LMFA does contain
11 land application provisions, they fall short of the
12 technical standards proposed in this rule.

13 We believe that unpermitted large
14 CAFOs should be subject to the same technical
15 standards for land applications, as are required of
16 permanent large CAFOs. Large CAFOs regardless of
17 their permitted status produce similar quantities
18 of waste and face the same waste management
19 challenges.

20 It does not make sense for
21 facilities without permits to be held to a lower
22 land application technical standard. In fact, it
23 is because they do not have permits and are not
24 subject to regular IEPA inspections that this is

1 all the more important that they be held to
2 protective standards.

3 This concludes the summary of my
4 testimony.

5 HEARING OFFICER FOX: Ms. Dexter, if
6 those summaries are complete as they appear to be,
7 we can turn to questions, if you are set to go to
8 those.

9 Ms. Manning, if you have
10 questions for the three witnesses on behalf of the
11 Environmental Groups, we are prepared to have you
12 begin these.

13 MS. MANNING: I do have some general
14 questions with both -- are you going to go
15 witness -- and then let the Agency ask questions of
16 that witness, or do you want me to ask questions of
17 all three witnesses?

18 HEARING OFFICER FOX: Well, the last
19 thing you said, Ms. Manning.

20 MS. MANNING: Okay. They will be
21 general in nature, and I am going to reserve the
22 right to ask questions after the Agency has asked
23 questions as well.

24 HEARING OFFICER FOX: Fair enough.

1 MS. MANNING: If that's all right.

2 Thank you.

3 A R N O L D L E D E R,

4 called as a witness herein, having been first duly
5 sworn, deposeeth and saith as follows:

6 DIRECT EXAMINATION

7 By Ms. Manning

8 Q. Starting then with Mr. Leder. Hello.
9 How are you?

10 A. Fine, thanks.

11 Q. So just to clarify, you are retired
12 from the USEPA and are testifying on behalf of the
13 Environmental Coalition today and not on behalf of
14 the USEPA; is that correct?

15 A. That is correct.

16 Q. Thank you. And when you say that you
17 worked at the USEPA from 1974 to 2006?

18 A. Yes.

19 Q. And when you say you've participated
20 in most Region 5 CAFO inspections, that would be in
21 what state, sir?

22 A. That would have been in Minnesota,
23 Wisconsin, Illinois, Ohio, Indiana, Michigan. I may
24 have covered that twice.

1 Q. Okay.

2 A. All the Region 5 states.

3 Q. And that would be --

4 A. For a good part of the time -- if I
5 might continue -- I was the CAFO enforcement program
6 when it started in the region, because I do have a
7 small farm in LaSalle County and was the only person
8 that had any agricultural background.

9 Q. Thank you. And do you still have that
10 small farm in La Salle County?

11 A. I do, Yes.

12 Q. I'm not sure it said what -- hogs. So
13 it's a swine farm in Wisconsin?

14 A. Yeah. Well, a number of years ago,
15 the price of hogs went down to 15 cents a pound and
16 the price of corn went to 3 dollars, and I haven't
17 done it since.

18 Q. So based on your experience in
19 inspecting each of these states, -- actually what
20 I'd ask you is what types of CAFO facilities, animal
21 types, did you inspect at each of these states?

22 A. We inspected poultry operations. We
23 inspected a large number of dairies. We inspected a
24 few swine facilities, open feedlots.

1 Q. You would agree, would you not, that
2 we are here for the very purposes of ensuring that
3 the federal rule -- the federal CAFO rule is
4 implemented by the state of Illinois. You would
5 agree with that?

6 A. I believe that's the case, yeah.

7 Q. In your inspection with the other
8 Region 5 states, you must have recognized that there
9 was a difference in Illinois in that Illinois has an
10 existing law applicable to livestock facilities that
11 preexisted the federal CAFO regulations. You don't
12 mention that in your testimony, but I'm assuming you
13 are aware of the Livestock Management Facilities
14 Act; is that correct?

15 A. Yes. To a limited extent, all the
16 states in Region 5 that weren't implementing the
17 NPDES program had independent state requirements
18 similar.

19 Q. And you indicate in your testimony, I
20 believe, on Page 5 that it could be very confusing
21 for the regulating community to have several sets of
22 practices?

23 A. Yes, particularly when it comes to the
24 technical standard.

1 Q. And that's particularly true as well
2 when it comes to nutrient management plans; for
3 example?

4 A. Very true.

5 Q. And I would assume that you are aware
6 on the basis of your experience as well that
7 livestock operators follow -- currently particularly
8 in Illinois, they follow nutrient management plan
9 requirements of an existing state law, the Livestock
10 Management Facilities Act, as well as guidance
11 and/or requirements of the USDA NRCS process when
12 they are seeking EQUIP dollars?

13 A. Yes.

14 Q. I assume on the basis of your
15 experience, you are aware that there is already
16 those two sets of requirements in Illinois that a
17 livestock operator would be following?

18 A. I'm aware of that.

19 Q. Pardon?

20 A. I'm aware of that.

21 Q. So it would make sense given that you
22 believe it could be very confusing for the
23 regulating community to have several sets of
24 practices that this Board ought to try to be as

1 consistent with this CAFO rule as the federal rules
2 require, understanding the existing state law, which
3 the Pollution Control Board is not in a position to
4 change; would you agree with that?

5 A. I would agree to the extent that it's
6 important to have consistent standards. I think one
7 of the things you need to keep in mind is that the
8 USEPA has set pretty express standards for who
9 qualifies -- how to determine whether a facility
10 qualifies for the storm water -- the ag storm water
11 exemption, and to have -- in order to qualify for
12 the ag storm water exemption under the EPA guidance,
13 they have to be able to demonstrate that they meet
14 the nutrient management standards established by the
15 director of the Agency, not the NRCS, not the State
16 Department of Agriculture.

17 So I think there is a big impetus
18 to make sure there is -- these are consistent and
19 that they -- I think EPA is probably going to -- my
20 guess would be they are going to insist that they be
21 consistent.

22 Q. But we're not here to -- excuse me.
23 We're not here to guess, and the key word there I
24 think is guidance. You said that the USEPA does, in

1 fact, have guidance, but the USEPA also has a
2 federal rule that they have not only proposed, but
3 implemented?

4 A. Right.

5 Q. And have required the states to
6 implement, and the states are, of course, required,
7 you would agree, to implement the federal rule, but
8 they are not required to implement the guidance.

9 Would you agree with that
10 statement? You have been a federal regulator for
11 many years. I would assume you understand that and
12 would agree with that statement?

13 A. All I can tell you is that in the past
14 we were sticklers for making sure that the guidance
15 that we provided to the states was adhered to in
16 their program modifications in order to retain the
17 NPDES part of the program. What the Agency would do
18 today, I can't tell you.

19 Q. And you recognize as well, however,
20 that the program modifications are being made in
21 Illinois pursuant to this process where the Illinois
22 EPA is proposing a rule to the Illinois Pollution
23 Control Board, and it's the Illinois Pollution
24 Control Board that will adopt that rule?

1 A. That's correct.

2 Q. Thank you. You state on Section -- on
3 Page 7 that the current system of CAFOs doing
4 self-determinations of whether they need a permit or
5 not is not working. I have several questions about
6 that statement, the first of which is, in most
7 environmental systems including this system industry
8 always makes a determination as to whether they need
9 a permit and then they apply for a permit; is that
10 not correct?

11 A. Typically speaking, yes.

12 Q. And you state that most permits issued
13 in Illinois are not in response to an application
14 but to a discharge.

15 A. That's my experience, yes.

16 Q. And you recognize that under federal
17 law and federal court decisions -- I'm sure you're
18 familiar with the Waterkeepers decision, as well as
19 the National Pork decision; am I correct that you
20 are familiar with both of those decisions?

21 A. Yes.

22 Q. That a permit is only required in the
23 context of a CAFO if, in fact, there is a discharge?

24 A. That's correct. Under federal

1 regulations.

2 Q. So you would agree.

3 A. The state regulations could be more
4 stringent.

5 Q. You would agree that a CAFO that is
6 not discharging does not need a discharge?

7 A. No. I think if I could go back to the
8 intent of my comment it was that, you know,
9 typically speaking, your agricultural applications
10 are remote locations. They may have discharges, and
11 nobody is aware of it. You know, again, there is
12 just no good inventory of where the facility is
13 located. There has been no good assessment of who
14 discharges, and I think that's something that the
15 state needs to complete in order to get a handle on
16 where they are and who can discharge and who does
17 discharge.

18 Q. We'll get to that later, but I guess I
19 would ask the question, would you agree that even
20 the whole idea of whether there is a discharge or
21 not, given the Rapanos decision -- and I'm sure you
22 are familiar with the Rapanos decision that required
23 federal guidance joint with the USEPA and the Army
24 Corps. Of Engineers in and of itself is murky

1 territory as to whether there was, in fact, a
2 discharge or whether there was not a discharge.
3 It's not such a clean-cut determination; would you
4 agree with that statement?

5 A. Yeah. I would agree that the Agency
6 doesn't -- has not been able to complete guidance at
7 this point, to my understanding.

8 Q. Oh, I guess the question is, is
9 whether there is a discharge of livestock waste to
10 jurisdictional federal waters a clear-cut
11 determination, or is it subject to a difference of
12 opinion as to whether there was, in fact, a
13 discharge?

14 A. There is a difference of opinion
15 apparently based on the Court decision.

16 MS. MANNING: Okay. And you, I
17 believe, alluded to me in answering my question
18 about the federal law driving this particular
19 process. You indicated that the states could be
20 stricter. Are you aware, though, that in
21 Illinois -- there is a provision in Illinois law
22 that states -- that no permit shall be required
23 under this subsection and this is Subsection 212-F
24 of the Environmental Protection Act, and under

1 Section 39(b) of this Act, for any discharge for
2 which a permit is not required under the Federal
3 Water Pollution Control Act as now or hereinafter
4 amended and regulations pursuant thereto?

5 In other words, if a federal
6 NPDES permit is not required under federal law, by
7 Illinois law it is also not required?

8 A. That's true.

9 Q. Okay. Thank you. Now, you as well
10 as, I think, Dr. Thu, called for a comprehensive
11 inventory of CAFOs in Illinois. Are you aware that
12 the Illinois EPA has already in this proceeding
13 indicated to the Pollution Control Board that they
14 do not believe that they have the authority to
15 request and/or the Board to develop such an
16 inventory under state law?

17 A. I'm aware that they made that
18 assertion.

19 Q. Okay.

20 A. I don't think it's a good idea. I
21 think, you know, there are ways to develop an
22 inventory. You need an inventory. You can't just
23 drive around the countryside and try to find the
24 facilities or fly over like the citizen groups do.

1 Q. The -- generally in the environmental
2 regulatory arena an agency like the USEPA or the
3 Illinois EPA develops such inventory when permits
4 are filed. Would you agree with that statement?

5 A. To some extent. I think that there
6 are other programs where that hasn't been the case;
7 the pre-treatment program, for example, where
8 industrial facilities are regulated. The industrial
9 facilities were the last to come forward and
10 identify themselves so that pre-treatment in
11 programs could be established, if they were
12 significant.

13 Q. Via federal regulation?

14 A. These were federal regulations.

15 Q. That's correct?

16 A. Yeah.

17 Q. And in terms of the EPA and the
18 regulations of CAFOs, the USEPA actually proposed to
19 do such inventory, but then withdrew that regulatory
20 proposal. So the current USEPA position is that
21 such inventories are not necessary? Would you agree
22 with that?

23 A. I'm not sure that's the position at
24 all. I really don't know what the position is. I

1 haven't discussed it with anybody at EPA. It may be
2 for all sorts of reasons.

3 Q. Okay. I'll step back for a minute
4 then. What I will ask is, you are aware, are you
5 not -- and I think it's either in your testimony or
6 certainly it's in Dr. Thu's testimony that the USEPA
7 did propose an inventory type system like you are
8 proposing, and then pulled back from that and
9 withdrew that regulatory proposal. You would agree
10 with that?

11 A. Yes.

12 MS. DEXTER: Can I ask a quick
13 follow-up?

14 MS. MANNING: Sure.

15 D R. K E N D A L L T H U,
16 called as a witness herein, having been first duly
17 sworn, deposeth and saith as follows:

18 DIRECT EXAMINATION

19 By Ms. Dexter

20 Q. Doctor Thu, can you explain your
21 perspective of the USEPA withdrawal of that rule?

22 MS. MANNING: No. I would object to
23 that. I don't know that he is even qualified if he
24 is not working at the USEPA and --

1 MS. DEXTER: I asked Dr. Thu,
2 correct?

3 MS. MANNING: Oh, I'm sorry.

4 HEARING OFFICER FOX: Dr. Thu has
5 been asked if he has an opinion about an issue that
6 was addressed in his pre-filed testimony, and if he
7 has an answer, I'll let him answer it.

8 THE WITNESS: You are absolutely
9 correct that the federal government withdrew their
10 requirement for inventory information. The basis
11 of that, though, was that the states would provide
12 in lieu of the federal inventory state based
13 inventory data that they could rely on. Therefore,
14 if we do not have the state inventory in Illinois,
15 we have no source of comprehensive inventory data
16 at either the state or the federal level.

17 MS. DEXTER: Thank you.

18 MS. OLSON: Can I ask a follow-up?

19 HEARING OFFICER FOX: Ms. Olson,
20 please go ahead.

21 C R O S S - E X A M I N A T I O N

22 By Ms. Olson

23 Q. Do you know whether, in your opinion,
24 USEPA thinks that an inventory is the same thing as

1 a reporting requirement?

2 A. I couldn't answer for the U.S. -- it's
3 Region 5. I can't answer that for them.

4 Q. In your opinion, do you believe that
5 an inventory is the same thing as reporting
6 requirement?

7 A. No.

8 Q. So when you say USEPA believes that
9 the states would gather the inventory, you are not
10 saying that the states would have a reporting
11 program. Is that correct?

12 A. You can gather an inventory without
13 having -- there's an inventory that somebody can do
14 independently from having a reporting requirement by
15 large CAFOs.

16 Q. So when you testified just a few
17 seconds ago that USEPA withdrew the rule because
18 they expected states to have an inventory, you did
19 not mean they withdrew the rule because they
20 expected states to have a registration or reporting
21 program; is that correct?

22 A. In the state of Illinois, the state of
23 Illinois has agreed to provide a reporting
24 requirement, registration requirement, for large

1 CAFOs.

2 Q. Is that correct?

3 A. That's correct.

4 Q. No. My question, I don't believe you
5 answered it. Is it correct that when you testified
6 a few minutes ago that USEPA withdrew the federal
7 reporting rule because -- the federal reporting rule
8 because it believed that states would be able to
9 have -- provide USEPA their CAFOs inventories, you
10 were not saying that USEPA withdrew the rule because
11 they expected states to have a reporting
12 requirement; is that correct?

13 A. You can get --

14 Q. It's a yes or no answer. Is that
15 correct?

16 A. It's not a yes or no answer. You can
17 get an inventory via a registration process, or you
18 can get an inventory in other ways.

19 Q. Does USEPA require states to have a
20 reporting rule?

21 A. No. They are relying on --

22 Q. Thank you --

23 A. -- they'd be able to inventory their
24 CAFOs.

1 C R O S S - E X A M I N A T I O N

2 By Ms. Manning

3 Q. And just as a follow-up to that, an
4 inventory could be something that is created as a
5 result of enforcement action?

6 A. That would be one mechanism, but
7 although it would be incomplete in order to assess
8 whether or not the state's program is adequately
9 assessing whether large CAFOs are discharged.

10 Q. And that's your position?

11 A. Yes, it is.

12 Q. That's your position?

13 A. Yes.

14 Q. Thank you?

15 C R O S S - E X A M I N A T I O N

16 By Ms. Diamond

17 Q. Can I ask a follow-up question of Dr.
18 Thu?

19 THE COURT REPORTER: What is your
20 name?

21 BY MS. DIAMOND:

22 Q. Danielle Diamond. Dr. Thu, the
23 Illinois EPA just asked you if USEPA withdrew its
24 rule so that states would require a reporting rule,

1 and your answer to that question was, no, but is it
2 true that in Illinois' case the USEPA had an
3 expectation that Illinois would enact a registration
4 program to create its inventory?

5 A. Yes. That's exactly my point, that in
6 the de delegation process IEPA agreed to establish a
7 registration process for large CAFOs. That was
8 independent of the federal government withdrawing
9 its information requirement at the federal level.

10 MS. WILLIAMS: May I ask a follow-up
11 now of Dr. Thu?

12 THE COURT REPORTER: Your name,
13 please?

14 MS. WILLIAMS: My name is Deborah
15 Williams from the Illinois Environmental Protection
16 Agency.

17 C R O S S - E X A M I N A T I O N

18 By Ms. Williams

19 Q. So when you talk about this
20 independent requirement, you're referring to one of
21 the objectives in the work plan. That was
22 Attachment 7 to your testimony; is that correct?

23 A. That's correct.

24 Q. Do you have any knowledge one way or

1 another whether the proposed Section 501.505 in the
2 Agency's proposal is in compliance with that element
3 of the work plan according to USEPA?

4 A. My understanding is that the state is
5 embarked on a seven county pilot project to
6 collect --

7 Q. I don't think that's my question about
8 the specific -- and maybe if you want to pull out
9 the exhibit?

10 A. Are you asking --

11 Q. I'm asking specifically about the
12 regulatory -- the independent regulatory burden that
13 you have described fulfilled the requirement, and my
14 question is whether that particular burden has been
15 met by the agency's proposal in section -- in
16 Part 501 to the Board.

17 A. Are you asking whether Region 5 has
18 approved what the state is doing?

19 Q. That would be one way to answer the
20 question.

21 A. Our most recent meeting with Region 5
22 doesn't indicate one way or the other. It's
23 inconclusive.

24 Q. And then with regard to Attachment 7

1 here to your testimony, are you aware if that
2 agreement has expired with federal fiscal year '12?

3 A. The work plan?

4 Q. Yes.

5 A. No. I'm not aware that it has
6 expired. It's the only work plan that we have.

7 Q. Do you have it with you?

8 A. Sure. You're taking about Illinois
9 Program Work Plan Agreement Between IEPA and Region
10 5?

11 Q. Yes. And I'm on the first page. I'm
12 going to read a sentence to you from the first page.
13 "This work plan contains activities and commitments
14 for both agencies relating to the Clean Water Act
15 NPDES and Clear Air Act Title 5 permitting and
16 enforcement programs; the work plan generally spans
17 federal fiscal year 2011 and 2012." And then
18 skipping down to the next paragraph, "Illinois EPA
19 and Region 5 will formally assess the need to
20 negotiate a revised agreement and work plan for
21 fiscal year '13."

22 A. Yes.

23 Q. So do you know if this is the most
24 up-to-date information?

1 A. I have nothing other than what was
2 provided by Region 5.

3 Q. But would you agree that this
4 particular work plan concludes at the end of federal
5 fiscal year 2012?

6 A. That's what the work plan says, yes.

7 MS. WILLIAMS: Thank you.

8 R E D I R E C T - E X A M I N A T I O N

9 By Ms. Dexter

10 Q. Just one follow-up. Did the Agency
11 comply with that requirement in the work plan within
12 the span of this agreement?

13 A. Which?

14 Q. The registration, that requirement.

15 A. What the Illinois EPA agreed to was to
16 create a registry within, I believe, 12 to 18 months
17 from completion of the pilot project. To my
18 knowledge, that has not been completed.

19 R E C R O S S - E X A M I N A T I O N

20 By Ms. Williams

21 Q. And just to be clear for the record,
22 you're talking now about what you described as a
23 separate requirement to create an inventory and not
24 the reporting requirement in the rule itself?

1 A. No. It would be a reporting
2 requirement that would -- that would be fulfilled
3 via the rule that we are proposing.

4 Q. Can you repeat -- can you repeat what
5 you said? It would be fulfilled in what time period
6 by the rule?

7 I think you're -- I think you
8 testified that there were two independent concepts,
9 and I think I agree with you, and now I think that
10 maybe you are making them into one.

11 A. What the -- what the Illinois EPA, as
12 you know, agreed to was to provide a pilot project
13 in a seven county area contracted with Western
14 Illinois University to see whether they could
15 develop an inventory in those seven counties that
16 could possibly be applied statewide.

17 Q. Okay. Now, that -- okay. So that is
18 not covered in this work plan, though, at all, is
19 it?

20 A. Well, it's covered in the sense that
21 refers to that pilot project. If you look in the
22 work plan under the inventory section -- and I can't
23 pull that out off the top -- they essentially are
24 agreeing to develop a comprehensive inventory

1 within, I believe, it's 12 to 18 months following
2 the testing of the pilot project on inventory in
3 seven counties.

4 Q. And back to, I guess, the question
5 that Ms. Olson was asking you, do you see a
6 comprehensive inventory as something different and
7 distinct from a reporting requirement placed on
8 individual facilities to submit information?

9 A. Well, we -- our proposal is for a
10 reporting requirement. As I see it now, the pilot
11 project is really an inventory project, if that's
12 what you are getting at. Okay. And what we are
13 proposing in our environmental group's rules is a
14 reporting requirement.

15 MS. WILLIAMS: Thank you.

16 MS. KNOWLES: But isn't the intent of
17 that -- isn't that intent of that proposal to
18 fulfill the inventory?

19 DR. THU: Right. In order to have a
20 comprehensive inventory, our position is that you'd
21 need to have the registration process, because the
22 existing sources of data are inadequate and
23 incomplete.

24 R E C R O S S - E X A M I N A T I O N

1 By Ms. Manning

2 Q. But to follow-up, that's your position
3 that that is not a requirement of the agreement as
4 we just have seen through your testimony to
5 Ms. Williams?

6 A. IEPA has already agreed to develop the
7 inventory of CAFOs statewide.

8 Q. Which they have done?

9 A. No, no. They have not done. They are
10 waiting to do it based upon the results of the seven
11 county pilot project, and it's my understanding that
12 they are working with Region 5 to look at that data
13 as a mechanism for creating a statewide inventory,
14 which they have not done yet.

15 Q. But that's different than the
16 reporting requirement that you are seeking here
17 before the Pollution Control Board?

18 A. That's right. We are saying that that
19 inventory, that comprehensive inventory cannot be
20 successfully met without the registration
21 requirement that we are requesting in the rules.

22 Q. And that is your position, but not
23 necessarily the position of the USEPA in its
24 agreement with the Illinois EPA?

1 A. The USEPA is requiring a comprehensive
2 inventory. To the extent that they meet that
3 requirement, it's our position that they can only
4 meet it through a registration program and not
5 through the kinds of data that they are currently
6 collecting.

7 R E C R O S S - E X A M I N A T I O N

8 By Ms. Diamond

9 Q. And I would like to ask you one more
10 follow-up question, Dr. Thu. Could you take a look
11 at Page 5 of the work plan agreement between USEPA
12 and the Illinois EPA?

13 A. My pages do not have page numbers.

14 MS. WILLIAMS: Objective No. 2?

15 DR. THU: Okay.

16 BY MS. DIAMOND:

17 Q. This was part of the work plan
18 agreement that I think was the emissions registry
19 that Ms. Dexter asked you a question regarding.

20 A. Would you read what you have as
21 Objective 2?

22 Q. USEPA approves amendments to the
23 Illinois Administrative Code, Subtitle E, which
24 reflect the 2003 and 2008 revisions to the federal

1 regulations for CAFOs and require the owners or
2 operators of all large CAFOs to register with the
3 Illinois EPA?

4 A. Correct.

5 Q. Okay. So does this to you -- in your
6 opinion, does this serve as a commitment by the
7 Illinois EPA to enact a registration program for all
8 large CAFOs in the current rulemaking?

9 A. Yes.

10 MS. DIAMOND: Okay. Thank you.

11 HEARING OFFICER FOX: Ms. Olson, did
12 you have a follow-up question?

13 R E C R O S S - E X A M I N A T I O N

14 By Ms. Olson

15 Q. I do. Dr. Thu, do you have personal
16 knowledge of whether or not USEPA has evaluated our
17 comprehensive inventory?

18 A. My knowledge is based upon our most
19 recent meeting with them which was, I guess, two
20 weeks ago in which we discussed inventory and data
21 sources and our concern with the inadequacy of
22 existing databases that were being used to compile
23 an inventory.

24 Q. And did USEPA tell you that our

1 inventory is inadequate as of that last meeting?

2 A. As I mentioned before, they didn't
3 commit one way or the other.

4 Q. So you lack knowledge about whether
5 USEPA believes our inventory is currently
6 unsatisfactory; is that correct?

7 A. They are currently assessing the data
8 that you provided for completeness.

9 Q. But you lack knowledge as to whether
10 or not USEPA believes our current inventory is
11 inadequate; is that correct?

12 A. As I said, they have not committed one
13 way or another to assessing your data, your data
14 sources thus far.

15 Q. So do you have knowledge whether USEPA
16 thinks that our inventory is inadequate?

17 A. As I said, the USEPA, Region 5, does
18 not have an opinion one way or the other whether
19 your data -- your inventory is complete or not.

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

21 HEARING OFFICER FOX: Ms. Manning, I
22 believe we are back to you for any questions that
23 you may have for Dr. Thu.

24 MS. MANNING: Actually, yes, I might

1 still have a few for --

2 HEARING OFFICER FOX: For Mr. Leder?

3 MS. MANNING: For Mr. Leder, but we
4 just jumped away from him, but that was a good
5 discussion.

6 DR. THU: Robust.

7 A R N O L D L E D E R,
8 recalled as a witness herein, having been first duly
9 sworn, deposeth and saith as follows:

10 C O N T I N U E D

11 R E D I R E C T E X A M I N A T I O N

12 By Ms. Manning

13 Q. On Page 3 of your testimony,
14 Mr. Leder, you indicate that any surface application
15 should be pre-approved by the Agency, because there
16 is a risk of discharge. By that -- and this is a
17 discussion regarding winter application. Is your
18 comment there just restricted to winter application,
19 that you are suggesting that there be a
20 pre-approval, a discussion between the producer and
21 the agency whenever there is a winter application
22 and then approval on the part of the EPA? I'm
23 sorry.

24 A. What we were getting at there is that

1 winter application -- because of the problems that I
2 talked about in my testimony of the winter
3 application, that fundamentally if somebody has to
4 do it because of an emergency basis; they lack
5 storage capacity, whatever the reason, they have to
6 land apply on frozen or snow covered ground, they
7 should call the regional office of the Illinois EPA
8 and notify them that they are going to have to land
9 apply on frozen and snow covered ground so that the
10 Agency can monitor it. I mean, it should not be a
11 routine activity. Land application on frozen and
12 snow covered ground should not be a routine
13 activity. And it does need to be monitored in case
14 there is a discharge. Somebody should get
15 permission before they do it.

16 Q. And you are suggesting that just when
17 there is a regulator application; not when there is
18 an injection or an incorporation? If the ground is
19 thawed enough to do an injection or --

20 A. You're right. I am talking about --
21 HEARING OFFICER FOX: Mr. Leder, I
22 don't think Ms. Manning had finished her question,
23 but I am sure she will give you every opportunity
24 to answer in full once she is finished.

1 BY MS. MANNING:

2 Q. If the ground is -- if it's subject to
3 injection or incorporation even though it is the
4 wintertime, you would not suggest that need
5 pre-approval?

6 A. As long as it can be injection
7 incorporated, no.

8 MS. MANNING: Thank you.

9 R E C R O S S - E X A M I N A T I O N

10 By Ms. Williams

11 Q. Can I ask a real quick follow-up? Ms.
12 Manning was asking you about the term "pre-approval"
13 that you used in your testimony, and I think when I
14 heard you answer, I heard you answer in terms of a
15 notification, that you thought there should be
16 notification to the field office.

17 Can you explain to us -- I believe
18 the word used in the environmental group's proposal
19 was actually "permission" from the Agency. So can
20 you address those three terms and what exactly you
21 are recommending?

22 A. I think that, first of all, if we
23 could back up a little bit, if a facility is going
24 to need to winter apply on frozen and snow covered

1 ground, they should identify the fields that are
2 amenable to it in there management plan. Secondly,
3 they ought to have adequate storage at the site.
4 They ought to have at least 180 days storage
5 minimum. If they can't -- if they have to land
6 apply in winter because they don't have storage
7 capacity and they have to dispose of the waste, then
8 they should contact -- I would recommend they
9 contact their regional ag rep and let him know that
10 they are going to have to land apply, what field
11 they are going to land apply on.

12 That could be done several
13 different ways. It could be done by contacting over
14 the phone, contacting through e-mail, sending a
15 letter, you know, any means of contact. The state
16 CAFO person should be given an opportunity to look
17 at the field and see if he agrees with the
18 determination. Say, okay, this is a safe field to
19 land apply on or not or this part of that field. He
20 needs to look at, you know, like I said, a
21 field-by-field assessment to see whether or not it
22 can be safely done.

23 Q. But you would agree that the field
24 by-field-assessment should be done in the winter

1 application plan initially? That would be the time
2 it would be done?

3 A. Well, it should be done in -- somebody
4 developing a nutrient management plan should
5 identify fields where they can safely land apply in
6 the winter if they need to.

7 Q. And the reason I'm asking about this
8 is I think that as someone with many years
9 experience in a regulatory agency you can appreciate
10 the significance to us of the difference between
11 providing notice to the field office and in an
12 emergency condition where someone is running out of
13 storage space asking permission, which involves a
14 determination by the Agency and a response back from
15 the Agency. So that is my big concern with the
16 proposal of this distinction that I think is between
17 the proposal and what --

18 A. I think there needs to be a review,
19 okay?

20 Q. Okay.

21 A. There needs to be a review, and the
22 appropriate person at the state needs to say, okay,
23 or even, like I said, go out and look at the
24 facility to see if he agrees.

1 Q. Could you see a downside for the
2 environment from that type --

3 A. I'm sorry?

4 Q. Could you see a downside for the
5 environment from that type of setup where a field
6 inspector would need to go out to the facility prior
7 to approving a winter land application?

8 A. Not if it results in a safe
9 application.

10 Q. So you can't see a situation where
11 someone might need to make a decision in too short
12 of a time?

13 A. I think it's something that ought to
14 be a priority. If somebody has -- it is eminent and
15 has a discharge -- I mean, if their storage
16 structure is so full that they are going to have to
17 land apply, you have an eminent situation that needs
18 to be addressed, and you can address it to make sure
19 it doesn't discharge, and it should be a priority.

20 MS. WILLIAMS: Thank you.

21 HEARING OFFICER FOX: Ms. Manning, I
22 think we are --

23 BY MS. WILLIAMS:

24 Q. But you think in that situation that

1 the Agency should have to approve -- they should
2 have to review, make the time to get out there and
3 do an inspection and issue an approval?

4 A. Yes.

5 DR. JAMES: May I ask a follow-up?

6 HEARING OFFICER FOX: Dr. James, go
7 ahead.

8 DR. JAMES: Is it generally the case
9 that a livestock operator would be aware that they
10 are close to discharging at least several days in
11 advance.

12 MS. KNOWLES: Maybe we should
13 clarify. It's not discharging. It's the need to
14 land apply and the need to land apply in the
15 winter.

16 DR. JAMES: I just said discharging
17 because the tendency is if you are close to
18 actually having the overflow that's when you tend
19 to run out to your winter application field.

20 THE WITNESS: I'm not sure I exactly
21 understand the question. I have seen a number of
22 instances in my experience where people haven't
23 been following good nutrient management plans; With
24 the runoff, for example, and the lagoon fills up

1 and starts overflowing and running downhill into
2 the local creek. I have seen, you know, just
3 hundreds of situations like that literally where
4 people have not -- they have had nutrient
5 management plans that are up on the shelf. They
6 haven't looked at them, but -- and they are not
7 following them. I think the point is to have the
8 management practices in place and have the farmer
9 follow them so that they prevent these kinds of
10 things from happening. You don't wait until after
11 the fact and there is a discharge and then you go
12 out and you deal with it. The farmer has
13 responsibility to make sure he doesn't discharge.

14 And there are two aspects to
15 this, I would guess, too. On one instance the
16 farmer that has an NPDES permit and he follows his
17 NPDES, if he is in compliance with his NPDES permit
18 and he has a discharge, he has got a defense
19 against the state in an enforcement case. Hey, I
20 did everything I was supposed to do. I maintained
21 my facility, yada, yada, yada. I've complied with
22 all these requirements. I've got all these
23 records. He thinks he's -- the farmer that has a
24 permit has a defense from the citizen suit

1 prosecution. He has a defense in federal court.
2 He has a defense against the Agency bringing a
3 suit.

4 The person that has a discharge
5 has no defense, no similar defense, and one of the
6 things that the federal Clean Water Act regulations
7 are still fairly clear about, the only way a CAFO
8 can have a lawful discharge is in compliance with
9 an NPDES permit.

10 HEARING OFFICER FOX: Mr. Rao has a
11 follow-up question for you, Mr. Leder.

12 C R O S S - E X A M I N A T I O N

13 By Board Member Rao

14 Q. I have a follow-up question to what
15 the Agency, Ms. Williams, was asking you about, the
16 approval process for winter application. Are you
17 aware of any other states in the Midwest who have a
18 similar process where prior to winter application
19 they have to seek permission or approval of a state
20 agency?

21 A. I believe Michigan requires their
22 NPDES permits. If somebody is running out of
23 storage and has an emergency they have a requirement
24 to notify, so notify the state.

1 Q. Is there some kind of a timeline
2 attached to it, because there is an emergency as to
3 the Agency is to respond within a certain period of
4 time?

5 A. I don't know what the timeline would
6 be specifically. That would lead -- you know, you
7 have an urgent situation. You know, somebody is out
8 of storage. They are going to have to put it
9 someplace. There ought to be some regulatory review
10 of that process to make sure it isn't discharged in
11 a place that results in a discharge.

12 That's important for two reasons;
13 one, if the facility doesn't want to get an NPDES --
14 have to get an NPDES permit because he has a
15 discharge, keeping himself from having a discharge,
16 and also, it's important in terms of compliance with
17 an NPDES permit requirement.

18 Q. So for the process to work efficiently
19 the Agency will have to get back in a very timely
20 manner or --

21 A. Right, yeah. I mean, it would be
22 essentially -- essentially the same way it responds
23 to probably a fish kill where you get out there, and
24 you take a look at it. In many cases the state may

1 have a copy of the nutrient management plan. They
2 can look up the particular field that the facility
3 is talking about. And he might be able to say,
4 okay, this field looks great over the phone. That
5 might be enough. In other cases, he may have to go
6 out and say, okay. How close is that field to the
7 creek that comes across the corner? What part of
8 the field are you going to land apply on, but you
9 can make sure that by going out there, that it's to
10 be a safe land application.

11 One of the things that we did a
12 lot during our inspections -- we found situations
13 like this where people had urgent requirements, and
14 when we had them, we went out, you know, typically
15 with the state agency, looked at the field and said,
16 okay. You can winter apply here on this field.

17 Q. Okay?

18 A. Because it can be done safely.

19 BOARD MEMBER RAO: Thank you for the
20 clarification.

21 HEARING OFFICER FOX: Ms. Olson, were
22 you indicating that you had a follow-up question?

23 MS. OLSON: I might. I'll ask it
24 later, if I do.

1 HEARING OFFICER FOX: Very good. Ms.
2 Manning, I think we can return to you if you have
3 additional questions for Mr. Leder at this stage.

4 MS. MANNING: I don't have any
5 additional for Mr. Leder. I do however have just a
6 few for Dr. Thu.

7 D R. K E N D A L L T H U,
8 recalled as a witness herein, having been first duly
9 sworn, deposeeth and saith as follows:

10 C O N T I N U E

11 R E D I R E C T E X A M I N A T I O N

12 By Ms. Manning

13 Q. I'm just curious, Dr. Thu, as to the
14 nature of your experience and your education. You
15 are a professor of anthropology.

16 A. That's correct.

17 Q. At NIU?

18 A. That's correct.

19 Q. And what are your degrees in?

20 A. Anthropology. I have four degrees and
21 one AA degree.

22 Q. All in anthropology?

23 A. That's right.

24 Q. And I noticed from the website you

1 teach a course called, what, food and culture, or
2 that's the department? Could you explain what
3 department you are in?

4 A. I'm in the anthropology department,
5 and my expertise is on food systems and cultural
6 revolution and the impact of CAFOs on the social
7 environmental and public health of rural areas.

8 Q. The gentleman -- I believe his name
9 was Eric Sterling -- who provided the public comment
10 who passionately spoke, you know, against CAFOs,
11 combined animal feed lot operations, I assume he is
12 a student of yours?

13 A. I think that's an accurate statement.
14 He works with me. He wants to be my student.

15 MS. MANNING: Thank you. That's all
16 I had for Dr. Thu.

17 HEARING OFFICER FOX: Thanks, Ms.
18 Manning. Any follow-ups on -- to Ms. Manning's
19 questions of Dr. Thu or Mr. Leder, for that matter?

20 MS. OLSON: I do have some follow-up
21 questions starting with Mr. Leder.

22 A R N O L D L E D E R,
23 recalled as a witness herein, having been first duly
24 sworn, deposeth and saith as follows:

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C O N T I N U E D

R E C R O S S - E X A M I N A T I O N

By Ms. Manning

Q. Just to go back to winter really quickly, and then we're going to move on, how quickly is a realistic expectation for the Agency to get back to a farmer who needs to land apply in an emergency in winter?

A. I'm sorry. What?

Q. What would you consider to be a realistic time frame for the Illinois EPA to respond with an approval to a farmer who has an emergency situation and needs to land apply?

A. I think -- I mean, it ought to be a priority. It would be the same priority that you would handle if there was a fish kill. You would want to have a system in place for looking at it right away, because you're trying to help a guy prevent a discharge.

R E C R O S S - E X A M I N A T I O N ?

By Ms. Olson

Q. So if this is a --

A. Right. And it makes more sense to deal with it before it becomes a discharge than

1 afterwards.

2 Q. If this is a facility that the Agency
3 has not previously regulated, is it safe to assume
4 that the Agency may not have the background
5 knowledge to quickly assess the fields?

6 A. That's quite likely, I think, but you
7 can get out there and you can take a look at the
8 field itself, get up here and actually look at the
9 site. It's one thing if you have a new containment
10 plan with field specific information. It's another
11 if you don't.

12 Q. Okay. Moving on. You have a portion
13 of your testimony that deals with restrictions on
14 land application, and you testified that it is
15 acceptable for the proposal, the regulatory
16 proposal, to contain adequate land application
17 setbacks from streams, wells and water conveyances.
18 However, in this testimony you don't state what
19 setbacks would be adequate. Do you believe that the
20 setbacks that are contained in the federal CAFO rule
21 would be adequate?

22 A. Typically, yes. I think that there
23 are some provisions in the federal rules for
24 modifications if a facility can demonstrate that

1 they are an alternate technology and so can result
2 in more pollution control.

3 Q. Are you familiar with the federal rule
4 setback from surface waters?

5 A. I believe it's 100 feet or a buffer
6 strip of 30 feet, if I remember correctly.

7 Q. And I'm summarizing here. So correct
8 me if I'm wrong; based on your testimony in -- that
9 you have filed and have given here today, you would
10 consider that to be adequate?

11 A. At a minimum, yes.

12 Q. Do you know what the Agency's current
13 proposal for setbacks is?

14 A. My understanding is, the last I knew
15 it was 100 feet for land application or 35 feet if
16 there was a vegetative buffer.

17 Q. Can I show you a copy of our proposal
18 real quick?

19 A. Sure.

20 Q. And if you would, Mr. Leder, I'm
21 showing you Section 502.645, and would you please
22 take a look at Subsection A?

23 A. Yes.

24 Q. So do you -- are you familiar with

1 what the Agency's proposal for setbacks to service
2 waters is?

3 A. It's not in Subsection A.

4 Q. I'm sorry. I meant B1. Excuse me.
5 My apologies.

6 A. Okay.

7 Q. Could you read the first line of B1
8 into the record for us, please?

9 A. Livestock waste shall not be land
10 applied within 100 feet of down-gradient open
11 surface drainage intakes, agricultural drainage
12 wells, sinkholes, grass waterways or other conduits
13 to surface water unless a 35-foot vegetative buffer
14 exists between the land application area and the
15 grass waterways, open surface drainage intakes,
16 agricultural drainage wells, sinkholes or other
17 conduits to surface water.

18 Q. That's great. That's B2. Would you
19 mind going just up one subsection?

20 A. Livestock waste shall not be land
21 applied within 200 feet of a surface water unless
22 the water is upgrade or there is adequate diking.

23 Q. Thank you. So does the IEPA proposal
24 double the federal rules setback from surface

1 waters?

2 A. Yes.

3 Q. And in your opinion would this be
4 adequately protective?

5 A. It would comply with the federal
6 requirements. I don't know whether it would be
7 adequate or not. Particularly diking may be
8 problematic. It's going to depend upon how much
9 runoff you get. Diking is not necessarily a very
10 effective method for -- or reliable method.

11 MS. OLSON: Okay. I'm going to move
12 on to --

13 C R O S S - E X A M I N A T I O N

14 By Ms. Knowles

15 Q. Before we move on, I have a question.
16 Are you aware that the Agency has only asked you
17 about setbacks from -- for land application setbacks
18 from surface waters?

19 A. That's right.

20 Q. Are you -- I believe in your testimony
21 you stated this importance of additional setbacks
22 and for siting setbacks. So those would be
23 requirements that production area and other parts of
24 the CAFOs are set back from surface waters and other

1 water features. Did you -- is that in your
2 testimony?

3 A. Yes, it is.

4 Q. And do you think those are a good
5 idea?

6 A. If think they are a very good idea for
7 a number of reasons. If you have more of a setback
8 and you have an overflow from the lagoon, if you are
9 remotely located from a water course, you can avoid
10 a discharge.

11 Q. In your role as an EPA inspector, have
12 you seen such discharges?

13 A. Yes, I have seen discharges -- such
14 discharges a number of times, particularly when
15 facilities are located in floodplains. I have seen
16 underwater lagoons draining several miles into
17 streams. I have seen a number of different
18 instances where there have been problems caused by
19 lagoon overflows ending up discharging into waters
20 of the U.S.

21 Q. And are you aware that the IEPA
22 proposed regulations do not contain siting setbacks
23 such as those you are describing?

24 A. Yes.

1 R E C R O S S - E X A M I N A T I O N ?

2 By Ms. Manning

3 Q. Would you agree that the federal rule,
4 CAFO rule upon which these rules are being proposed
5 also do not contain setback requirements for siting
6 purposes?

7 A. Yes. Again, the federal rules are
8 minimum requirements.

9 HEARING OFFICER FOX: Ms. Olson, you
10 had indicated that you were prepared to turn to
11 another subject, but I am going to interrupt once
12 again. We have been back at it for approximately
13 two hours. If you would not object, we can take a
14 15-minute break, resume at 25 to 4:00, and begin
15 right where you would pick up with that line of
16 questioning, and we will go off the record then for
17 that break. We will see you all in 15 minutes.

18 (Whereupon, after a short
19 break was had, the
20 following proceedings
21 were held accordingly.)

22 HEARING OFFICER FOX: Thank you very
23 much for returning promptly from the break. Ms.
24 Olson, when we did go on break, you had indicated

1 that you had a line of questions for the
2 Environmental Groups' witness, and if you are
3 prepared to do so, we can resume that right away.

4 R E C R O S S - E X A M I N A T I O N ?

5 By Ms. Olson

6 Q. Thank you. I had a few questions for
7 you, Mr. Leder. And there is only a few left here.
8 So I won't keep you too long.

9 You testified -- and this has to
10 do with production area setbacks, and you testified
11 about facilities in Ohio that are constructed in a
12 floodplain, and that these facilities end up being
13 completely flooded when there is a big storm. Are
14 you aware of any livestock facilities constructed in
15 floodplains in Illinois?

16 A. No.

17 Q. To your knowledge, are facilities
18 barred from constructing in a floodplain in Illinois
19 under the LMFA?

20 A. I do not know the answer to that
21 question.

22 Q. Okay. You also gave some testimony
23 regarding technical standards and nutrient
24 management plans for unpermitted large CAFOs, and my

1 first question under this topic is, to your
2 knowledge, are CAFOs -- unpermitted large CAFOs
3 required to develop and implement a nutrient
4 management plan under the federal rules?

5 A. Not to my knowledge.

6 Q. And can you comment on, in your
7 opinion, whether you believe it's possible for an
8 unpermitted large CAFO to develop a nutrient
9 management practice -- not a plan, a practice --
10 sufficient to claim the agricultural storm water
11 exemption as articulated under the federal rule?

12 A. I'm not sure of your question. Could
13 you repeat it?

14 Q. Sure. Is it possible for an
15 unpermitted large CAFO to develop nutrient
16 management practices sufficient to claim the
17 agricultural storm water exemption under the federal
18 rule?

19 A. I believe as long as the facilities
20 can demonstrate that the --

21 MS. DEXTER: May I try to just
22 clarify?

23 MS. OLSON: He didn't finish
24 answering the question. So can you hold your

1 clarification until he is finished.

2 MS. DEXTER: Can you explain what you
3 mean by nutrient management practices?

4 BY MS. OLSON:

5 Q. I think he understands -- I think he
6 understands?

7 A. Let me just go back. When this -- the
8 whole CAFO issue became an issue in the United
9 States at the EPA it became -- a joint strategy was
10 developed with the Department of Agriculture and the
11 USEPA, and basically under that strategy all animal
12 feeding operations, large animal feeding operations,
13 were expected to have a nutrient management plan,
14 and even medium sized CAFOs were suggested -- not
15 required necessarily, but suggested to have a
16 nutrient management plan. If you have a --
17 basically a nutrient management plan that meets the
18 requirements of a nutrient management plan, if you
19 want to call it a new nutrient practice and it meets
20 all the required standards, you would probably
21 qualify for the next storm water exemption.

22 Q. And when you say meets all the
23 requirements, what -- are you thinking of the
24 requirements to insure adequate agricultural

1 utilization of the nutrients and the livestock
2 waste? Is that what you are referring to?

3 A. That and compliance with the setbacks,
4 compliance with the other inventories that are
5 required in the nutrient management plan, the
6 facility inventory, the maintenance of storm water
7 diversions, you know, separating clean storm water
8 from the waste waters. It's more than just the land
9 application practices.

10 Q. In your testimony you mentioned the
11 federal preamble in your discussion of what
12 practices would be appropriate to qualify for
13 agricultural storm water exemptions.

14 Do you understand the federal rule
15 to require unpermitted large CAFOs follow the
16 technical standards as established by the director
17 of the USEPA?

18 A. And I believe that they require -- I
19 believe the director in that instance refers to the
20 director of the state agency, the standards adopted
21 by the state agency. The director is the head of
22 the state agency, and that's what we are trying to
23 do here today is we are trying to develop those
24 standards which facilities have to meet in order to

1 qualify for the ag storm water exemption.

2 Q. So is it your understanding that
3 unpermitted large facilities must follow the
4 technical standards established by the Director to
5 claim the agricultural storm water exemption as
6 articulated in the preamble to the federal rules?

7 A. I believe that's the case, yes.

8 Q. Did you attach the federal preamble to
9 the 2008 rules to your testimony?

10 A. Yes.

11 Q. I believe it was Attachment 4, is that
12 right?

13 A. I'm sorry?

14 Q. Was it Attachment 4?

15 A. I believe so.

16 Q. And would you mind flipping to 70435?

17 A. I don't have a copy of that with me.

18 Do you have a copy.

19 Q. Yes.

20 HEARING OFFICER FOX: Ms. Olson, just
21 for clarification, if I may interrupt. Although I
22 may be mistaken, I believe the 2008 preamble is
23 Attachment No. 2 to Mr. Leder's testimony.

24 MS. OLSON: Thank you. These are all

1 of the attachments. I'll just hand them to you.

2 (Document tendered
3 to the witness.)

4 BY MS. OLSON:

5 Q. So in the third column and the first
6 full paragraph that starts because, you go down
7 about 1, 2, 3, 4, 5, 6, 7, 8 -- 11 lines. There is
8 a sentence that starts, if a facility chooses.
9 Could you go ahead and read that sentence?

10 A. I'm sorry. Where are we? Is there a
11 subsection number?

12 Q. It's Page 70435?

13 A. Okay.

14 Q. In the third column the first full
15 paragraph starts, because, and if you look down
16 about ten lines, there is a sentence that starts, If
17 a facility... Could you go ahead and read that
18 sentence for us?

19 A. If a facility chooses to take a
20 different approach to follow other standards, a
21 facility would need to demonstrate not only that its
22 practices accord -- accorded with such alternative
23 standards, but also that the standards provide a
24 reliable, technically valid basis for meeting the

1 terms of 122.42 Sub E, Sub I, Sub 8.

2 Q. Can you explain to me what that
3 statement means by chance?

4 A. It provides an alternative for a
5 facility to demonstrate -- make a demonstration that
6 the alternative practices will result in achieving
7 the same basic results.

8 Q. So can unpermitted large facilities
9 follow something other than the technical standards
10 established by the director if they make such a
11 showing?

12 A. Yes.

13 MS. KNOWLES: When you move to a
14 different topic, let me know, because I dont want
15 to interrupt you in the flow of questions.

16 MS. OLSON: Yes. That's all I have.
17 So feel free.

18

19 R E C R O S S - E X A M I N A T I O N

20 By Ms. Knowles

21 Q. Could you speak to the importance of
22 technical standards in terms of land application?

23 A. Well, the technical standards
24 developed by the director typically form the basis

1 for the nutrient management plans that are developed
2 by the CAFOs. They govern in a number of areas.
3 They require management practices at the CAFO
4 production area to inventory and record information
5 like lagoon levels, inventory capacity, information
6 estimates as to the amounts of livestock waste
7 generated. They typically improve the -- set the
8 requirements for the cropping plans, which are going
9 to allow the CAFO to ensure that they have adequate
10 land for land application of their manure and so
11 that can be disposed of safely.

12 Q. And can you describe some of the
13 technical standards that have to do with protection
14 against the danger of nutrient transport potential?

15 A. Fundamentally, they require that the
16 waste manure be land applied at agronomic rates,
17 basically at a rate that the crop will build up the
18 nutrients. They also require setbacks and that sort
19 of thing.

20 Q. And earlier there was testimony about
21 nutrient management plans. Can you speak to the
22 importance of a nutrient management plan and as
23 distinguishable from simply a nutrient management
24 practice? Why is a plan important?

1 A. A plan is important because a
2 facility, again, has developed a specific plan for
3 his facility that looks at everything from diversion
4 of clean storm water from a site, maintenance
5 procedures at the site for storm water and
6 wastewater, land application cropping reports, a
7 field assessment, all sorts of detail. I'm not sure
8 what a nutrient management practice is. Is it just
9 having a grass waterway? Is it having a filter
10 strip? I mean, I really don't know what a -- myself
11 what nutrient management practice would accomplish.

12 Q. And a nutrient management plan, would
13 you see that as a useful tool for a number of
14 parties?

15 A. It would be useful for the Agency to
16 have a copy of the information. In the event that
17 there is a discharge from the facility, it would be
18 useful for citizens that were concerned about
19 discharges from the facility, and it would also --
20 fundamentally it would serve as a management tool
21 that the farmer could use to actually manage his
22 facility to make sure that he doesn't have a
23 discharge, through his daily inspections, through
24 his checking of weather reports for following the

1 basic required practices in his nutrient management
2 plan.

3 Q. Earlier when you were speaking to when
4 there was discussion, robust discussion, about
5 winter application and our proposals that the
6 applicer seek the permission of the Agency, you
7 mentioned that the nutrient management plan was
8 something that if the Agency had them in the office,
9 they could consult the nutrient management plan and
10 perhaps make a decision based on that; is that
11 correct? Is that what you stated?

12 A. That's correct. Typically they have
13 in their nutrient management plan an aerial photo of
14 a particular field. They typically identify water
15 courses in the field. They typically identify
16 wells. They typically identify areas where there
17 should be setbacks and so forth, also what crop is
18 going to be applied on that particular field and the
19 estimates for the amount of manure that should be
20 land applied.

21 Q. And as part of that discussion
22 regarding winter land application and the need to
23 notify and/or seek permission of the Agency, there
24 was testimony that if it was a last-minute decision,

1 if it was difficult to have time to -- for the
2 Agency to go out there, is winter application -- is
3 the decision to make -- is the decision to winter
4 apply always such an emergency situation?

5 A. Again, it depends largely on the
6 field. It depends on how much notice the facility
7 has. If he is monitoring his waste levels, he might
8 have a week or two. If he is not monitoring his
9 waste levels, if he is fully going to overflow with
10 it, then it is an emergency situation. It can vary
11 from facility to facility.

12 MS. KNOWLES: Thank you.

13 R E C R O S S - E X A M I N A T I O N

14 By Board Member Rao

15 Q. May I ask up follow-up on the winter
16 application?

17 Mr. Leder, on Page 3 of your
18 testimony you had recommended that the storage for
19 winter should be a minimum of six months?

20 A. Yes.

21 Q. For, you know, storing the livestock
22 waste, and the Agency at Section 502.630 had
23 proposed that a facility should provide for 120 days
24 of available storage capacity on December 1st.

1 Does that 120 days' storage -- and
2 they call it available storage capacity. Does that
3 address your concern for winter storage?

4 A. I'm not really sure that it does. In
5 many instances and in a lot of cases I have dealt
6 with farms that had problems that may have -- many
7 of the farmers that I dealt with that had overflow
8 problems actually told me that they wished they had
9 more storage than the minimum requirement.

10 It varies based upon the type of
11 industry. Dairies, for example, have much more
12 wastewater that they have to deal with. So that
13 kind of 120-day window may not be enough. One of
14 the things that -- and I don't know what currently
15 the USEPA recommends, but back when I was doing
16 inspections, regulations that came out in 2003
17 defined adequate storage as having enough storage
18 for manure for the six wettest months, for the
19 precipitation on their storage structure for the six
20 wettest months, the storm water runoff from the CAFO
21 production area for the six wettest months, and that
22 was deemed to be adequate storage. And I think that
23 probably does a little better job. I don't know if
24 that's still the same standard.

1 Illinois EPA probably knows more
2 about that, but I think they tried to define
3 adequate storage in that manner. If you could --
4 even facilities that have had that much storage,
5 depending on the year, depending on the wetness of
6 the year, haven't been able to land apply --
7 handle -- they haven't had enough storage capacity
8 so that they could land apply safely under all
9 conditions.

10 Q. So your recommendation for 180 days,
11 would that account for some of the --

12 A. Personally, I think that should be a
13 minimum.

14 MS. KNOWLES: I had a follow-up
15 related to earlier testimony and she jumped ahead,
16 and I didn't get it in. Is it okay if I ask him
17 now?

18 HEARING OFFICER FOX: Ms. Knowles, go
19 ahead.

20 R E C R O S S - E X A M I N A T I O N

21 By Ms. Knowles

22 Q. Okay. So earlier we were discussing
23 the Agency asked you about parts of your testimony
24 you said there is a facility in Indiana, I believe,

1 that was located in the floodplain and there was
2 flooding. A quick question. Is it possible -- and
3 this has to do with, again, the idea that we need
4 setbacks from production areas as well as setbacks
5 from land applications. Is it possible for a
6 facility that's not located in a floodplain to also
7 be subject to flooding?

8 A. You can have -- depending on -- yeah.
9 When you get a tremendous terrain event. I mean,
10 there are CAFOs out east are being flooded now in
11 the storms, and they are not in a floodplain. They
12 are in a catastrophic situation. You can have
13 overflows from storage areas, and again, the more
14 remote the storage areas are from the -- from water
15 courses, you have an extra buffer, because you can
16 dike up, and you can hold, and you can contain the
17 overflow to some extent on your -- in your buffer
18 zone.

19 Q. So there's really two problems we are
20 discussing; one is if you -- you could have flooding
21 of a lagoon and/or, two, you could have overtopping
22 of the lagoon if it's close to a waterway?

23 A. Yes.

24 R E C R O S S - E X A M I N A T I O N

1 By Board Member Rao

2 Q. May I ask a follow-up on the
3 floodplain issue?

4 Mr. Leder, our existing rules
5 under Section 501.402 required some new livestock
6 management facilities and also livestock waste
7 handling facilities, which are located in a ten-year
8 floodplain to be protected against such floods. It
9 doesn't say how you are protected, but at least the
10 requirement is in there. Would that address your
11 concern about those facilities being located in the
12 floodplain?

13 A. I personally would like to see a
14 little bit more conservatism in that. I think a
15 better design would be -- for new facilities would
16 be not to locate them in 100-year floodplains.

17 Q. Okay. Is that what the federal rules
18 recommend?

19 A. I don't think the federal Rule
20 addresses it. I mean, I'm just saying -- you asked
21 me my opinion, and that would be my opinion. I
22 would be more conservative, personally.

23 Q. But would that be your recommendation
24 for both waste management facilities like lagoons

1 and also for land application?

2 A. No. I'm not -- no. I wouldn't apply
3 that to land application. I would apply that to --
4 basically the CAFO production area where raw
5 materials that are stored that can come into contact
6 with storm water where manure and wastewaters are
7 stored. You know, but not for the land application.
8 I wouldn't apply that to the land application
9 sentence.

10 R E C R O S S - E X A M I N A T I O N

11 By Ms. Knowles

12 Q. One more for me. Earlier you said
13 once or twice today that the federal Rule that
14 everyone was referring to, it contains only the
15 minimum requirements; is that correct?

16 A. That's correct.

17 Q. You just stated to the Board that your
18 recommendation would be more conservative than
19 what's in the proposed rule. Why is that?

20 A. It is more protective of water
21 quality.

22 Q. And do you believe that the rule that
23 IEPA eventually comes out with should be -- should
24 contain more than the minimum requirements in the

1 federal rule?

2 A. As a citizen of this state, yes, I
3 think so.

4 Q. Why is that?

5 A. Because it's more protective.

6 Q. What is that conclusion based upon?

7 A. It's based upon my experience with
8 CAFOs that discharge.

9 MS. KNOWLES: Thank you.

10 HEARING OFFICER FOX: Ms. Manning, I
11 believe we began with your questions to Mr. Leder,
12 and maybe it's a good time to see if you have
13 additional questions for him at this time.

14 MS. MANNING: I do not.

15 HEARING OFFICER FOX: Miss Olson, on
16 behalf of the agency, any follow-ups for Mr. Leder?

17 R E C R O S S - E X A M I N A T I O N

18 By Ms. Olson

19 Q. I just have one follow-up question.
20 It sounds like you have a lot of experience doing
21 investigations on CAFOs in Illinois. From your
22 experience, have you ever seen a waste management
23 plan at a facility that you have inspected, a waste
24 management plan developed under the LMFA?

1 A. I have not -- first of all, let me
2 clarify. Most of my experience has been in other
3 states. I spent maybe three or four weeks in
4 Illinois doing inspections before I retired. But,
5 yes, I have seen -- we had an enforcement case as a
6 result of an inspection in Illinois, and the CAFO
7 said, yes, I have a nutrient management plan. It's
8 up here on my shelf someplace. He didn't know where
9 it was. He couldn't find it during the meeting, and
10 he wasn't particularly following it, you know.

11 Q. Did you have a chance to look at the
12 waste management plan prepared under the LMFA?

13 A. No, I didn't. I mean, he couldn't
14 find it. We ended up actually working with him to
15 develop a nutrient management plan.

16 MS. OLSON: That's all I have. Thank
17 you.

18 R E D I R E C T - E X A M I N A T I O N ?

19 By Ms. Manning

20 Q. As a follow-up, you do realize that
21 Illinois law at 510 ILCS 77/20 does, in fact,
22 require a livestock facility to have such; it's
23 called a waste management plan, but if you review
24 that particular statute, many of the things you

1 discussed are discussed in that -- those provisions?

2 A. Yes.

3 MS. MANNING: Thank you.

4 HEARING OFFICER FOX: Ms. Dexter, any
5 further questions for Mr. Leder?

6 MS. DEXTER: I don't think right now.

7 HEARING OFFICER FOX: Very good. Mr.
8 Leder, we did note that the testimony of the three
9 witnesses does have some relationships to one
10 another. So if we could ask you, you are under
11 oath and you are here to stay.

12 I think, Ms. Manning, you had had
13 some questions all three for Dr. Thu that you had
14 raised. Did you have additional questions?

15 MS. MANNING: I do not.

16 HEARING OFFICER KEN: Ms. Olson or
17 Ms. Williams, on behalf of the Agency for Dr. Thu,
18 any additional questions at this stage?

19 MS. WILLIAMS: No.

20 MS. OLSON: No.

21 HEARING OFFICER FOX: Very well. Ms.
22 Dexter, did you want to ask any follow-up
23 questions?

24 MS. DEXTER: No.

1 HEARING OFFICER FOX: Ms. Dexter, do
2 you want to ask any follow-up questions?

3 MS. DEXTER: No.

4 HEARING OFFICER FOX: Ms. Knowles,
5 please go ahead.

6 D R. K E N D A L L T H U,
7 recalled as a witness herein, having been first duly
8 sworn, deposeth and saith as follows:

9 C O N T I N U E D

10 R E C R O S S - E X A M I N A T I O N

11 By Ms. Knowles

12 Q. So earlier there was a lot of
13 testimony and discussion about our proposal that
14 there be a reporting requirement in order to fulfill
15 that step and eventually compile a comprehensive
16 inventory. Is it your understanding, Dr. Thu, that
17 IEPA's most recent plan to develop an inventory was
18 to use data that's available -- the data that is in
19 the possession of NRCS and the Department of
20 Agriculture?

21 A. My understanding is -- and I'm sure
22 IEPA will correct me if I'm wrong. The inventory
23 that they are working on is based on data from the
24 Illinois Department of Public Health's data registry

1 as well as the construction data from the IDOA as
2 well as perhaps some additional data that's being
3 provided by GIS services from the seven county area.

4 Each of those data sets, actually
5 the two maintains ones, as I understand it, the
6 Department of Public Health's dairy registry and the
7 IDOA construction data set are incomplete. The --
8 my understanding is that the Department of Public
9 Health's dairy registry had not been updated since
10 2003. The IDOA data does not include any the cases
11 before 1999 when the LMFA was passed. The IDOA data
12 does not contain data from existing facilities that
13 have expanded under certain circumstances.

14 So, therefore, there are certain
15 facilities that are being missed by both of those
16 data sets. It's not to say that those data sets are
17 not useful. It's just to say that they are not in
18 and of themselves going to be able to complete a
19 comprehensive inventory as required by Region 5.

20 Q. Are there any other problems
21 associated with that data that you are aware of and
22 the Agency's access thereto?

23 A. It's my understanding that the IEPA
24 has had trouble accessing data from IDOA on a

1 regular basis. I can't remember the specifics of
2 where this is reported. I believe it's in either
3 the work plan or the IEPA's response to the USEPA de
4 legation of the report, and certainly the public,
5 private citizens have difficulty accessing those
6 nutrient management plans whether they are on file
7 with IDOA or they are listed -- they are on-site as
8 Mr. Leder discussed a moment ago.

9 Q. Okay. Earlier you mentioned you set
10 up these four enlarged photos for us. Could you
11 please explain to the Board and the rest of us what
12 these depict?

13 A. These photos are a result of flyovers
14 that we do periodically. At most we're able to do
15 two of them a year. Once in the spring and once in
16 the fall for one day for a period of about five or
17 six hours. We primarily fly over facilities that
18 are located near ICCAW members. Those are the ones
19 that they are most concerned about. So those are
20 the ones that we go to. This particular facility --
21 to clarify, we can maybe fly over 20 to 30
22 facilities in a particular flight plan.

23 This particular facility we caught
24 a discharging directly into a local creek in Rock

1 Island County. You can -- I can estimate that of
2 the facilities that we observe, roughly 30 percent
3 have one or more problems, either an existing
4 problem or potential problem that we can detect.
5 And then we take all of these photos, and we forward
6 them to Region 5 and IEPA for further analysis.

7 But again, these are only the ones
8 that we know about. If we knew where the large
9 CAFOs were located, then we could prioritize our
10 time and effort. I think it would take less time
11 and effort by and large, but we simply don't know
12 where they are, and neither does anybody else.

13 Q. Could you actually show us, because I
14 don't know what that would be?

15 A. Yeah. So what you see here is this is
16 the facility. It's approximately a 1200 hog swine
17 production facility. This is the lagoon right here,
18 and if you look closely, if you can see this far. I
19 know you can't see from this end. There is a ravine
20 that's been created, a breach in the berm along
21 the -- what is the west side of the lagoons. And
22 that breach is running down here into the thick of
23 the trees, which is the stream that runs north/south
24 nearby. And you can see it from this angle, as well

1 as this angle.

2 No one would have been able to
3 known that this discharge was occurring had we not
4 been there. When we reported it to IEPA, they went
5 out the very next day, and they were still
6 discharging at that time. And then it was referred
7 to Region 5 and the Attorney General, as I
8 understand.

9 So this is the kind of thing that
10 can be detected. We would prefer to have an
11 inventory of large CAFOs so we can prioritize which
12 ones ought to be attended to based upon proximity to
13 service waters and particularly, proximity to
14 carrier service waters. So that's what you have
15 there.

16 HEARING OFFICER FOX: Ms. Knowles, if
17 I may interrupt just for a moment. Dr. Thu, did I
18 understand you correctly earlier to say that the
19 photos that you have just been pointing out are
20 enlargements of the same photos included with your
21 pre-filed testimony as Attachment No. 3?

22 DR. THU: Exactly so.

23 HEARING OFFICER FOX: Thank you.

24 BY MS. KNOWLES:

1 Q. My last set of questions have to do
2 with your -- you testified in your written testimony
3 that many large operations -- I think you said
4 67 percent of them -- end up transferring their
5 waste off-site; is that correct?

6 A. Not quite. In the background data to
7 the 2002 rule, the EPA/USDA estimated that large
8 CAFOs must off-site transport about 60 to 70 percent
9 of their phosphorus and nitrogen. I have to commend
10 the IEPA because in their proposed rules, they now
11 have some information requirements for off-site
12 transport of manure. Our proposed -- our proposal
13 is to simply expand upon what the IEPA is requiring
14 for off-site transport.

15 Q. So when you say 60 to 70 percent of
16 their -- you said nutrients?

17 A. Phosphorus and nitrogen is specified.

18 Q. How does that translate?

19 A. That, I couldn't tell you.

20 Q. Would you say that is a prevalent
21 practice?

22 A. I would pose that question to
23 Mr. Leder. I would say that -- I would say if --
24 since the NPDES permit does not cover off-site

1 transport of manure, if you don't have some way of
2 tracking it and holding those accountable that
3 receive the manure, it is de facto an incentive for
4 the large operator to actually get rid of it,
5 because it's, therefore, not their responsibility.

6 If you have some sort of
7 arrangement where there is responsibility by the --
8 by virtue of the contract arrangement between the
9 producer and the receiver, then you will have a more
10 accountable system in place.

11 Q. Mr. Leder, can you speak to the
12 prevalence of off-site transfer?

13 A. One of the things that I found when we
14 were doing inspections was that particularly the
15 really large facilities, particularly the poultry
16 operations tend to use brokers. The waste would be
17 transferred to a broker, and the broker would end up
18 selling the manure to all sorts of different
19 locations. And in the meantime it was stored in
20 stacks and often the stacks might discharge.

21 I have seen a number of instances
22 where the CAFO would not have adequate land of his
23 own. He may have only 50 acres of farm ground he
24 can land apply on, and he has a 5,000 head dairy,

1 and so he has got to find other places he can give
2 the waste to. He is not required currently under
3 the federal regulations to develop a nutrient
4 management plan for that land application site, even
5 if the CAFO owner may actually land apply the waste
6 for the farmer. If he gives the waste -- if he
7 gives the waste away, he is not required currently
8 to monitor. That is a significant number of
9 instances where that has also led to discharges; the
10 waste is then overapplied.

11 Q. Okay. So when there is an off-site
12 transfer, the land to which it is applied is not
13 subject to a nutrient management plan; is that what
14 your understanding is?

15 A. That's correct.

16 Q. And what problems do you see
17 associated with that?

18 A. You run the risk of a discharge if the
19 waste isn't land applied appropriately, and the
20 farmer that gets the waste isn't under any real
21 obligation to land apply it appropriately.

22 Q. So there is no determination of what
23 the proper agronomic rate is; is that correct?

24 A. Yeah. I mean, I agree. There

1 typically is no review, no nutrient management plan.
2 It just goes to the other site.

3 Q. So the setback -- whatever setback
4 requirements end up in the state rule, would those
5 apply to the off-site transfers?

6 A. Not in my understanding, no.

7 MS. KNOWLES: Thank you.

8 HEARING OFFICER FOX: Any further
9 follow-up questions for Mr. Leder or Dr. Thu on the
10 part of the agency or the agricultural coalition?

11 MS. MANNING: No.

12 HEARING OFFICER FOX: Neither seeing
13 nor hearing any, Dr. Thu, if we could ask you to
14 remain on hand as well. As Mr. Leder demonstrated,
15 there may very well be some follow-up questions
16 that are appropriately directed to you.

17 It appears, Ms. Manning, we have
18 come to the point at which you, I suspect, have
19 some questions based on Dr. James' testimony, and
20 if you are prepared to turn to those, or to
21 indicate that you have none, we can take that up.

22 D R. S T A C Y J A M E S,
23 called as a witness herein, having been first duly
24 sworn, deposeth and saith as follows:

1 DIRECT EXAMINATION

2 By Ms. Manning

3 Q. I do. I have a few questions for Dr.
4 James. Thank you.

5 Dr. James, my questions focus
6 primarily on the enforcement cases on the complaints
7 that you site in your testimony. Because I'm kind
8 of confused as to what points you're trying to make
9 with those enforcement cases.

10 So let's start with on Page 3 you
11 site four cases, most of which, I believe, are cases
12 currently pending either before the Illinois
13 Pollution Control Board or in one or more circuit
14 courts. Is your purpose in providing these cases in
15 this context to indicate that you believe the
16 complaint to set out accurate facts upon which the
17 Pollution Control Board should make decisions,
18 because at least Attachment 1, Attachment 4,
19 Attachment 6 and Attachment 8 are complaints.
20 Attachment 2 in Professional Swine Management, an
21 order related to North Fork Pork. Attachment 7 and
22 Attachment 9 are consent orders, consent agreements
23 that were signed by parties.

24 So what we have here I think in

1 all of these -- and you site more on Page 5. You
2 talk again about People of the state of Illinois
3 versus Mike Richter; again, the Kenneth Fehr case.
4 So my question is, the allegations in the complaint,
5 are you asking for the Board to take those
6 allegations as fact?

7 A. I'm asking that they be taken under
8 consideration. It's my understanding that most
9 cases are settled. The vast majority of the cases
10 are settled. Very few are adjudicated, and
11 therefore, I also would like to point out that there
12 are orders associated with most of the complaints I
13 filed, which indicates a settlement. So that
14 indicates something.

15 Q. So what you have is a complaint that
16 was filed because the Agency believed there was an
17 allegation, and there was a settlement made on
18 behalf of the producer with the Agency, and the
19 matter moved forward.

20 In other words, obviously the
21 Agency believes that the producer had reached
22 compliance through the enforcement process. Would
23 you agree with that, or there would not be an order?

24 A. I'm not a lawyer. So I don't think

1 I'm qualified to answer that question.

2 C R O S S - E X A M I N A T I O N

3 By Ms. Olson

4 Q. Can I ask a follow-up?

5 Do you have any better evidence of
6 the enforcement cases that you are aware of? Is
7 there any better way of showing the Board the sorts
8 of problems that are brought up in an enforcement
9 suit than the complaints and what you presented?

10 A. I personally don't know of any. I
11 would also like to point out that there is a heck of
12 a lot more violation notices out there than there
13 are complaints. So we are seeing just a slim
14 portion of the whole evidence out there that
15 indicates the nature of the problems that a CAFO is
16 composed of.

17 MS. MANNING: Again, and I would
18 dispute the characterization of it being evidence.
19 It is allegations in a complaint brought pursuant
20 to a procedural mechanism that is not only required
21 and recognized by law, and that are settlements
22 that follow through with that. And that's an
23 argument.

24 MS. DEXTER: And I don't want to get

1 too far in trying to pin her on legal issues.

2 BY MS. MANNING:

3 Q. And I guess I would suggest as well,
4 if you look at Mr. -- Mr. Leder in his testimony, I
5 think, cited a case from Michigan where a consent
6 order was reached and compliance was reached.

7 So would you agree that actually
8 enforcement brings about compliance as well?

9 A. You would hope so. However, what I am
10 presenting to you is information indicating the
11 nature of the problems that CAFO is composed. I'm
12 not sure how else we are going to see that besides
13 complaints unless we FOIA the IEPA for all their
14 violation notices and section reports which I can
15 tell you there are quite a few.

16 Q. Which is really a good thing that
17 there is quite a few of inspections of CAFOs. Would
18 you agree with that?

19 A. They are usually responsive to some
20 complaints indicating a problem.

21 Q. Which -- go ahead. I'm sorry.

22 A. And in most cases or in quite a few
23 cases -- it on the year -- those complaints are
24 found to be substantiated.

1 answered the first part of your question. I'm
2 still not understanding the latter half of your
3 question.

4 MS. MANNING: Well, I believe you
5 indicated that there are a lot of inspections, but
6 you don't know what happens to those inspections.
7 You only know when a complaint is filed, and then
8 you believe when a complaint is filed that that's
9 actually evidence of a problem. In other words,
10 that there was a fact that there was a discharge
11 because it's alleged.

12 MS. DEXTER: Are you asking an answer
13 to the legal position or the -- you started using
14 words like evidence, and I just want to make sure
15 that you are -- she is clear that she is being
16 asked.

17 BY MS. MANNING:

18 Q. You don't have a problem with the
19 number of investigations the Agency conducts?

20 A. Not if they are in response to citizen
21 complaints and they need to be conducted.

22 MS. MANNING: All right. Thank you.

23 C R O S S - E X A M I N A T I O N

24

By Ms. Dexter

1 Q. I have a follow-up.

2 Dr. James, you -- how adequately
3 do you think the inspections cover the universe of
4 large CAFOs in the state of Illinois?

5 A. Well, each year there is usually about
6 150, 200 inspections -- or pardon me. Each year
7 approximately 150 to 200 facilities are inspected.
8 Those facilities can range in size from under 50
9 animal units to over 5,000 animal units. So it's
10 covering the full livestock universe, and I have
11 done reading. I actually have it as an Exhibit if
12 we need it, but that Illinois has over 10,000
13 livestock operations of commercial scale size. It
14 was a report that was actually funded by the
15 Illinois Pork Producers Association. So if you are
16 inspecting 150 to 200 facilities out of at least
17 10,000 plus, it's a fairly low percent rate of
18 inspection.

19 MS. DEXTER: Thank you.

20 R E - D I R E C T E X A M I N A T I O N

21 By Ms. Manning

22 Q. Ms. James, on Page 5 when you are
23 discussing the Richter case doing business as
24 Rich-Lane Farms, just as an example, you cite the

1 complaint and then you say, in addition, a swale was
2 found to be discharging livestock waste from the
3 land application field into the creek. The field
4 was purportedly oversaturated with livestock waste.

5 When you say a swale was found to
6 be discharge, what you really mean is the Attorney
7 General alleged that a swale was discharging; is
8 that correct?

9 A. Yes. And I assume anything that they
10 are alleging is based on IEPA inspection reports,
11 and I would certainly hope IEPA is not making things
12 up when they are filing reports.

13 Q. And you realize the Attorney General
14 also can file something on its own motion whether
15 it's consistent with an IEPA investigation or
16 whether there is an IEPA investigation that follows
17 through with that or not?

18 A. I'm not aware of that.

19 MS. MANNING: Thank you. That's all
20 I have right now. I'll return to questions after
21 the Agency is done, if I might.

22 HEARING OFFICER FOX: Thanks, Ms.
23 Manning.

24 Ms. Olson, do you or Ms. Williams

1 on behalf of the Agency have questions for Dr.
2 James?

3 C R O S S - E X A M I N A T I O N

4 By Ms. Olson

5 Q. Yeah. Sure. I only have a few. I
6 won't take too long. I have whittled it down. So I
7 want to start with -- I have one question about your
8 testimony regarding livestock facility locations, so
9 the production area of the location.

10 I believe that in your testimony
11 you propose that all new livestock management
12 facilities and new livestock waste handling
13 facilities be subject to a 750-foot production area
14 setback from service waters. Is that an accurate
15 description of what you are talking about here?

16 A. Correct.

17 Q. And what do you mean by new facility?

18 A. Basically, I presume built upon the
19 adoption of these rules.

20 Q. Are you aware that Part 501 currently
21 has a definition for new livestock waste management
22 facility and new livestock waste handling facility?

23 A. In the proposed?

24 Q. They are currently in effect, and they

1 are not under -- they are not included as being
2 changed in this proposal. I have it for you, if you
3 would like to see it.

4 A. Yes. I've got it. I've got it.
5 Okay.

6 Q. Would you mind telling me what the
7 definition of new livestock management facility and
8 new livestock waste handling facility is under
9 current Section 501.230?

10 A. I'm going to cut to the chase and it
11 says, since 1978. So thank you for pointing that
12 out, and that was not our intent.

13 Q. Okay. Moving on, land application
14 setbacks. In your testimony you state that, "It is
15 estimated that over 30 percent of Illinois' crop
16 land has subsurface tile drainage." Can you tell us
17 who made this estimate?

18 A. I am sorry. I did not provide a
19 citation for that. I believe I got it from USDA,
20 but I'm not 100 percent certain.

21 Q. Do you know when the publication was
22 that you based it on, when it was published?

23 A. I don't recall.

24 Q. Okay.

1 A. But I think it's fairly well
2 established that Illinois has quite a lot of tile
3 drainage.

4 Q. Could it be possible that Illinois has
5 more than 30 percent of crop land with subsurface
6 tile drainage?

7 A. I guess, I don't want to go beyond
8 what my testimony states.

9 Q. In your testimony you state that land
10 application setbacks from biologically significant
11 streams, outstanding water resources and designated
12 service drinking water supplies should be increased
13 to 100 -- or 500 feet. Excuse me.

14 In your opinion, could this
15 setback be decreased if a vegetative buffer existed
16 between the land application area and the
17 biologically significant stream, outstanding water
18 resource for designated service drinking water
19 supply?

20 A. I would say, yes, provided there is
21 not a conveyance within that buffer. So vegetative
22 buffers do a proven job of removing nutrients as
23 well as pathogens. The nature of that buffer very
24 much affects the effectiveness of that buffer in

1 removing pollutants. However, a buffer can be
2 compromised if there is some sort of channelization
3 of storm water runoff through it such that you get
4 less treatment. The idea of the buffer is you get
5 overland flow if you get flow basically permeating
6 of that buffer by the runoff, allowing those
7 nutrients to be sequestered by the soil and the
8 vegetation and that in that buffer. So if there is
9 any sort of discreet conveyance going through that
10 buffer, that kind of takes away from that.

11 Q. Thank you. I have a follow-up.
12 Should CAFO under the proposal as submitted by the
13 Environmental Groups be allowed to demonstrate a
14 variety of conservation practices such as a buffer
15 or other field specific conditions that provide
16 equivalents to that pollutant reductions on a site
17 specific basis?

18 A. I think if you could figure out a way
19 to do it so that these alternatives are really
20 proven to work then, yes. My concern is there is a
21 lot of language in our regulations that talk about
22 you can do alternative practices that blah, blah,
23 blah, and unless those are really verified, you
24 don't know if they are working.

1 Q. Do you know whether the USEPA believes
2 that 100-foot setbacks from surface waters would
3 minimize potential runoff of pathogen hormones such
4 as estrogen and metals and reduce the nutrient and
5 sediment runoff?

6 A. Though I know that's the required
7 minimum setback that's in the federal rules,
8 however, there has been evidence provided by your
9 Agency that runoff from land application fields can
10 exceed that amount, and in fact, I'd like to quote
11 from my testimony. This is on Page 5 of my
12 testimony, fourth paragraph down. Sorry. Third
13 paragraph down partway through. It says, Daniel
14 Heacock of Illinois EPA provided evidence of this in
15 his pre-filed answer to the Environmental Groups'
16 pre-filed Question No. 9 for the Springfield
17 hearing. He wrote, "Overland flow of livestock
18 waste has been observed entering surface waters
19 several hundred feet from the edge of a field where
20 land application occurred." That's all.

21 Q. I'm just going to take this as an
22 opportunity to clarify. Are you referring to the
23 answer to Question 9 that was directed to Daniel
24 Heacock?

1 A. In the pre-filed questions it was
2 Question 9.

3 Q. Do you know whether or not Daniel
4 Heacock provided an answer to the Agency as a whole,
5 split the questions up and answered them according
6 to their specialization?

7 A. I would have no idea.

8 Q. So would it be fair to say that it
9 might not have been Daniel Heacock that provided
10 that answer?

11 A. Based on what you are implying, I
12 suppose so.

13 Q. Okay. I have one question for you and
14 maybe two on temporary manure stacks.

15 From your experience, can you tell
16 us whether a cover and pad would be needed to
17 prevent runoff and leachate the manure stack from
18 entering surface waters if the manure stack was
19 located 751 feet from surface waters?

20 A. Well, I think we all realize that
21 these regulations are a way to put numbers on things
22 that are very hard to regulate, and so, you know,
23 even when USEPA sets water quality standards, they
24 are setting that -- those based on an acceptable

1 risk, and so I think the idea behind these rules
2 and, you know, having some prescription in the rules
3 is that we are trying to minimize risk while knowing
4 there is going to be nothing in the rule that's
5 going to prevent everything. You know, there is
6 going to be no way to write a rule so that
7 discharges never happen.

8 Q. So I am just going to bring you back
9 to the question that I asked. Is it possible that a
10 newer cover --

11 A. Yes.

12 Q. So it is possible that you would need
13 a pad and cover, right, correct, to prevent leachate
14 from reaching surface waters?

15 A. The pad and cover would not prevent?
16 Say that again. I'm sorry.

17 Q. I'm sorry for the confusion. The
18 question was, can you tell us whether a cover and
19 pad would be needed to prevent runoff and leachate
20 from a manure stack from entering surface waters if
21 the manure stack was located 751 feet from surface
22 waters?

23 A. Possibly.

24 Q. Now, are you familiar with the

1 Agency's proposal?

2 A. Yes.

3 Q. So under the Agency's proposal, would
4 that be required?

5 A. The Agency's proposal states, has a
6 caveat of sorts. So we are looking at 501,
7 404(b)(3) and in the proposal it says, a cover and
8 pad or other control must be provided when needed to
9 prevent runoff and leachate from entering surface
10 waters and ground waters.

11 Q. And correct me if I'm wrong, but
12 didn't you just testify that it is possible that a
13 cover and pad would be needed if the manure was
14 located 751 feet from the surface waters?

15 A. Yes.

16 Q. So under the Illinois EPA proposal,
17 would a cover and pad be required?

18 A. If the person knows how to do a
19 determination that they need something to prevent
20 runoff and leachate from entering surface waters and
21 groundwater.

22 Q. So is that a yes?

23 MS. KNOWLES: Don't let her badger
24 you to tell her the answer she wants. Repeat the

1 question, please.

2 BY MS. OLSON:

3 Q. Under the Agency's proposal would --
4 okay. So you previously testified that it is
5 possible that a cover and pad would be needed to
6 prevent runoff and leachate from a manure stack from
7 entering surface waters when the manure stack is
8 located 751 feet from surface waters.

9 So my question was, based on that
10 testimony, can you tell us under the Illinois EPA
11 proposal, would a pad and cover be required?

12 MS. KNOWLES: I'm going to object to
13 this question, because the determination of the
14 rules written is to be made by the Agency and not
15 by Dr. James. I think she has answered the
16 question.

17 HEARING OFFICER FOX: Dr. James, if
18 you have an answer that you can provide based on
19 your knowledge, please go ahead.

20 DR. JAMES: If the person decides --

21 BY MS. OLSON:

22 Q. Let's assume that you are the person.

23 MS. KNOWLES: Which person?

24 BY MS. OLSON:

1 Q. The person who is making the decision
2 about whether a cover and pad would be needed, and
3 you've made that decision. You have testified here
4 today that it would possibly be needed. So let's
5 assume that it is needed, and under our proposal, is
6 it required?

7 A. Yes.

8 Q. Under your proposal, under the
9 environmental group's proposal, would it be
10 required?

11 A. You have a choice. You do the cover
12 and pad or you do the setback, so --

13 Q. So are you telling me that if you are
14 located 800 feet, you still have to have a cover and
15 a pad under your proposal?

16 A. Yes. It would give you -- you
17 might --

18 Q. I'm not sure I am following how that
19 would work. It seems to me that if you have a
20 choice, if you are located 600 feet from the surface
21 waters you have to have a pad and a cover, but if
22 your manure stack is located within the setbacks,
23 and you are complying with the setback portion, you
24 would not be required to have a cover and pad.

1 A. I understand what you are saying. We
2 decided to establish a setback as an alternative to
3 having a cover and pad in case there was an instance
4 where having a cover and pad was for some reason not
5 feasible, believing that those setbacks would be
6 adequate to prevent most discharges from occurring.

7 Q. So if I am within the 750-foot
8 setback, I do not need a cover and pad under your
9 proposal; is that correct? So if I'm at 775 feet, I
10 do not need a cover and a pad; is that correct?

11 A. Yes.

12 Q. And if my manure stack is located 751
13 feet from surface water, would I need a cover and
14 pad under your proposal?

15 A. 751? No, you would not.

16 Q. Would you agree -- I'm sorry.

17 A. My concern -- our concern is we don't
18 like language that says when needed, because when
19 needed is -- seems to be a very subjective decision
20 that you're making. Clearly a lot of livestock
21 producers out there don't feel that they have needed
22 to prevent runoff and leachate from leaving their
23 manure stacks, and that's why in my pre-filed
24 testimony you find so many cases where IEPA has gone

1 out there and found that manure stacks are
2 discharging. It's in the complaints. It's in the
3 IEPA's own reports.

4 So there's a lot of people who do
5 not understand how to manage their manure stacks.
6 And so instead of having language like "when
7 needed," we are proposing that there be two options;
8 have a cover and pad or comply with these setbacks
9 that we decided will be adequate.

10 Q. So based on the discussion that we
11 have been having here today about 751 feet and the
12 manure stack being located there, would you agree
13 that our proposal is more stringent than your
14 proposal?

15 A. No.

16 MS. OLSON: Moving on.

17 MS. MANNING: Can I do a follow-up to
18 that as well?

19 MS. OLSON: Sure.

20 MS. MANNING: Ms. James, would you
21 agree that if the producer made the wrong decision
22 about whether it was needed or it wasn't needed and
23 a complaint was filed, it is quite likely based on
24 your research if you read the complaints and the

1 orders that followed those complaints that there
2 would very likely be a discussion between the
3 Agency, the Attorney General's office and the
4 producer indicating that potentially a pad was
5 needed because there was a discharge and that is
6 part of the consent order that that might likely be
7 part of the process and the resolution.

8 DR. JAMES: Well, I think you are
9 making some assumptions there. You are assuming
10 that the IEPA is aware of every single manure stack
11 out there that has a problem, and that's not the
12 case. So these regulations are intended to prevent
13 that. I mean, I have tried to establish that IEPA
14 has a very low inspection rate of CAFOs; not just
15 of CAFOs, but of any livestock operation in this
16 state, and I would like to point out that the
17 section that we are looking at or the part,
18 Part 501, is not just for CAFOs. It's for any
19 livestock operation in the state of Illinois, and
20 so we have at least 10,000 livestock operations in
21 the state of Illinois, and the Illinois EPA is
22 inspecting 150 to 200 of them a year, and some
23 facilities they have never inspected. Some
24 facilities they have no idea where they are.

1 So for you to tell me that, okay,
2 IEPA goes out there and, problem solved, that's
3 completely incorrect. That's correct when the IEPA
4 happens to go out there and do an inspection or
5 when someone files a complaint, but that does not
6 cover the whole universe of facilities out there.

7 HEARING OFFICER FOX: Anything
8 further, Ms. Manning?

9 MS. MANNING: No.

10 HEARING OFFICER FOX: Ms. Olson, if
11 have another questions.

12 BY MS. OLSON:

13 Q. Yes. I only have two more questions.

14 And so in your proposal -- this is
15 again on the temporary manure stacks, do you propose
16 requiring temporary manure stacks to have a pad and
17 cover when they are less than 20 inches of
18 unconsolidated material over bedrock? Can you
19 explain for us how 20 inches of unconsolidated
20 material over bedrock is protective for groundwater?

21 A. Well, I base that suggestion in an
22 effort to be consistent with what you were proposing
23 in 502.620, and that, of course, was the topic of
24 much discussion already today, but basically if you

1 look at 502.620, I believe I -- well, no. I'm not
2 sure if this came from here or someplace else. But
3 I know that I took the suggested language from
4 language I have seen in Illinois regulations or
5 proposed regulations.

6 Q. And finally, you have a discussion
7 about winter in your testimony, and I was just
8 wondering if you could articulate for us the basis
9 of your change for the definition of frozen ground?

10 A. Well, I think my testimony regarding
11 frozen ground, which can be found on Page 12, the
12 second full paragraph, is just more of a word of
13 warning. I am not an expert on frozen ground, per
14 se. I am aware that the USEPA suggested in their
15 comments on IEPA's draft that frozen ground be
16 changed from a half inch to actually zero inches.
17 That -- those USEPA comments were -- were included
18 by IEPA in your -- in what you pre-filed. So that
19 is on the docket. It's also -- that suggestion that
20 USEPA asked to define frozen as starting at zero
21 inches is also in appendix zero -- or pardon me --
22 Appendix O of USEPA 2004, which we also have
23 submitted on the docket.

24 Now, I also would like to point

1 out that the USEPA made comments on some other
2 aspects of your proposed rule regarding frozen
3 ground, and they made a number of scientific
4 citations and if you will pardon me, I'm going to
5 get that.

6 Okay. So in USEPA comments and
7 IEPA's draft rule, they were responding on a
8 May 17th, I think, 2011, draft.

9 Q. Can you give us a the attachment
10 number so I know I am looking at the same thing?

11 A. I'm sorry. I didn't --

12 Q. It should be on the bottom.

13 A. Thank you, 7B, Attachment 7B. So
14 USEPA commented on a May 17th draft. So this was a
15 communication from USEPA to IEPA. On Page 5 of that
16 communication under 502.630 partway down the
17 paragraph they talk about a number of things. And
18 about partway down they say, Dunn and Black and Dunn
19 et al; it's reported that the infiltration capacity
20 of soils with concrete frost can be lowered to 0.02
21 centimeters or less per hour. Thompson, et al,
22 1979, stated that as little as one inch of concrete
23 frost prevents infiltrations, and then finally,
24 Mitchell et al, 1997, proposed that for frozen soil

1 the potential maximum retention after runoff begins,
2 and the -- the equation for net storm rain is 1/10
3 of the potential for unfrozen soil.

4 So they are providing some
5 relevant citations there, although they are not in
6 the particular paragraph discussing them in
7 reference to the definition of frozen ground.

8 But, you know, there is evidence
9 out there that the frozen ground, shallowly frozen
10 can produce runoff, and if you are producing runoff
11 when you are land applying waste, it's not an
12 agronomic, you know, application. And I'd also like
13 to point out that I have had concerns that the
14 agricultural coalition has proposed a change to the
15 definition of frozen ground based on no scientific
16 evidence, whatsoever, and I think that they need to
17 be supporting that proposal with scientific evidence
18 that changing that definition will be protective.

19 MS. OLSON: Thank you. That's all I
20 have.

21 BOARD MEMBER RAO: Okay. I've got a
22 follow-up.

23 HEARING OFFICER FOX: Please go
24 ahead, Mr. Rao.

1 A R N O L D L E D E R,
2 recalled as a witness herein, having been first duly
3 sworn, deposeeth and saith as follows:

4 C O N T I N U E D
5 C R O S S - E X A M I N A T I O N

6 By Board Member Rao

7 Q. This is about the definition of frozen
8 ground, and Mr. Leder may be able to shed some light
9 on this. I want to know how this type of a standard
10 would be implemented in the field.

11 A. I can tell you what we used to do at
12 the USEPA. We basically looked at whether or not
13 the facility had the ability to incorporate the
14 waste through injection; in other words, if there
15 was equipment, could we inject to the crust so that
16 the waste was actually incorporated. I mean, that
17 was the test that we used when I was an enforcement
18 officer.

19 I think fundamentally that
20 provides an easy way to do it. I mean, most people
21 know what their equipment is capable of and whether
22 or not they can inject -- adequately inject the
23 waste or not, but it needs to be incorporated. I
24 mean, you just have to avoid at almost all costs the

1 land application, just depositing it on the frozen
2 and snow covered ground. If you are in any
3 proximity to a stream and you get a January thaw and
4 you get a rain and the temperature goes up to
5 60 degrees, I mean, it just goes right to the creek.

6 Q. How would you make a determination
7 letter that the ground is frozen is what I was
8 interested in, because they are talking about all
9 these different depths two-inches, half inch?

10 A. Again, a lot depends on the equipment
11 that the facility has, and they know the power of
12 the equipment. A lot of this equipment can
13 penetrate down through two or three inches of frost
14 and disturb it and inject the manure. And I think
15 that would be the easiest method rather than trying
16 to -- well, a half inch or personally, I mean,
17 that's not necessarily what the environmental groups
18 want, but personally it's a way to deal with it.
19 One of the things that Michigan devised -- when we
20 first ran into this in Michigan, they looked at the
21 frozen and snow covered, snow -- if you could -- the
22 snow was basically initially defined as can you
23 drive a snowmobile across the field? If you can,
24 you didn't want to land apply on that snow. And

1 then whether -- then the other provision was could
2 it be incorporated? And did they have the capacity
3 to incorporate it, and if they could, what it did,
4 it extended the season. So they could go further
5 into the winter and land apply.

6 D R. S T A C Y J A M E S,
7 Recalled as a witness herein, having been first duly
8 sworn, deposeeth and saith as follows:

9 C O N T I N U E D

10 C R O S S - E X A M I N A T I O N

11 By Board Member Rao

12 Q. Thank you. I had a few more questions
13 on the proposed language that the environmental
14 group submitted, and I don't know if you can answer
15 it.

16 Okay. The first one deals with
17 expanding the scope of some of the requirements for
18 unpermitted large CAFOs, and in Section 501.405,
19 which is the field application of livestock waste,
20 the language being proposed by the environmental
21 groups states that, Large unpermitted CAFOs must
22 comply with Section 502.102, 502.505, 502.510(b),
23 502.610(k) and 502.615 through 502.645. And then I
24 looked at Section 502.500, Subsection A. Here you

1 make a distinction between unpermitted large CAFOs
2 claiming an agricultural storm water exemption, and
3 the unpermitted large CAFOs. They have differing
4 requirements.

5 Could you clarify whether they all
6 have to comply with the same set of requirements or
7 if there is some changes here under 502.500?

8 A. I'm sorry. I'm not exactly
9 understanding your question. Are you saying you're
10 seeing differences between 501.405(a) and 502.500
11 and that's confusing?

12 Q. I am seeing a difference between
13 501.405(a) and 502.500(a).

14 A. And --

15 Q. For the requirements that apply to
16 unpermitted large CAFOs?

17 A. And are you saying that's because --

18 Q. I'm asking you why.

19 A. Well, I think for one, this rule is
20 the -- you know, it can be a bit confusing because
21 in this place you are subject to these sections and
22 in other places you are subject to other sections.

23 Q. Yes.

24 A. So I mean, our basic ask is

1 unpermitted large CAFOs be subject to the same
2 technical standards as permitted CAFOs, and --

3 MS. KNOWLES: Regarding land
4 application?

5 DR. JAMES: Yes. And so therefore,
6 in 501.4 Part A we basically laid out what sections
7 we feel the unpermitted large need to be subject
8 to.

9 BY BOARD MEMBER RAO:

10 Q. Okay. And when it comes to nutrient
11 management plans and the plans, you don't have the
12 same -- you're not asking for the same set of
13 requirements?

14 A. Well, I believe we're asking that
15 unpermitted large be subject to 505, which is the
16 nutrient management plan section. So we are
17 basically asking that they develop plans, and that
18 they follow what's in 505.

19 Q. But if you read the Subsection A --

20 A. 500.

21 Q. 502.500 Subsection A, Unpermitted
22 large CAFOs claiming an agricultural storm water
23 exemption from NPDES requirements consistent with
24 502.102 must demonstrate to the Agency the

1 requirements of Section 502.505, 502.510(b) and
2 502.615 through 645. And then in the first sentence
3 you have, Unpermitted large CAFOs are subject to
4 Sections 502.500(a) and 502.510(b). It was a little
5 confusing the way it's set out.

6 A. Well, maybe I should turn it over to
7 someone else, but I believe that that initial
8 sentence that you just mentioned, that the state on
9 permanent large CAFOs is subject to Section
10 502.500(a) and 502.510(b) was written because under
11 this section that we're part of, so Subpart B, that
12 those are the two sections in Subpart B that we want
13 them to be subject to. Maybe we shouldn't have
14 written that sentence.

15 BOARD MEMBER RAO: If you can take a
16 look at it, you know, you don't have to, you know,
17 answer it right now. Just take a look at it and
18 make sure it works in conjunction with the other
19 section.

20 MS. WILLIAMS: When you are looking
21 at that, I read this maybe to suggest in the
22 statement that you made earlier that led me to
23 continue to believe that you were -- when you say
24 we're proposing that the unpermitted large CAFOs

1 have the same requirements as permitted large
2 CAFOs, you did not distinguish that with
3 unpermitted large CAFOs seeking the agricultural
4 storm water exemption. So that was the question I
5 had for you is by this first sentence do you mean,
6 even if an unpermitted large CAFO was not going to
7 avail themselves of the agricultural storm water
8 exemption, you would have those requirements that
9 you wanted them to meet. Could you just look into
10 that and clarify that?

11 HEARING OFFICER FOX: Mr. Rao, do you
12 have anything else?

13 BOARD MEMBER RAO: Yeah, I have one
14 more. In your proposal in several sections you
15 have changed the phrase "waters of the United
16 States" to "waters of the state." Could you please
17 explain the rationale for making the change and
18 what implications were made.

19 MS. DEXTER: I think we hope to make
20 that as a legal argument.

21 BOARD MEMBER RAO: That will be fine.

22 MS. DEXTER: When we file our
23 comments later on.

24 MS. KNOWLES: But the implication is

1 that waters of the state is broader than waters of
2 the U.S.; in thinking that the Illinois
3 Environmental Protection Act requires protection of
4 all waters of the state and that this rule should
5 apply to all waters of the state.

6 MS. OLSON: When you say this rule,
7 are you saying 501 and 502, the entire thing?

8 MS. KNOWLES: Yes.

9 BOARD MEMBER RAO: Okay. But I'm
10 expecting there will be more discussion about it in
11 your legal brief.

12 MS. DEXTER: Yes.

13 BY BOARD MEMBER RAO:

14 Q. Let me see if I have anything else.
15 Dr. James, on Pages 8 and 9 of your testimony, you
16 recommended that the Board revise the threshold for
17 switching from nitrogen based to phosphorous based
18 livestock waste application from 300 pounds of
19 available phosphorous per acre to 200 pounds of
20 available phosphorus per acre.

21 Could you please comment on what
22 this change -- what kind of impact it will have on
23 agricultural land available for land application of
24 livestock waste?

1 A. Well, it depends on what fields the
2 particular operator is using and the existing soil
3 test phosphorus concentration in those fields. So
4 if you are currently a producer and you have fields
5 that you are using that are above 200, then this
6 proposal would require you to switch to a phosphorus
7 based rate which would mean that you would need more
8 acreage because you are applying less manure, but
9 the benefit, of course, is that you are risking less
10 loss of phosphorus and fewer water quality problems.

11 So it does overall -- well
12 overall, you know, in areas where there is high
13 amounts of phosphorus require you to switch from
14 nitrogen based to phosphorous based.

15 Q. In terms of available land in
16 Illinois, will this have a significant impact in
17 changing the application rates?

18 A. Again, I think it depends on the area
19 and the actual fields. There was something that I
20 cited in my pre-filed testimony and that is Page 10.
21 At the top there is a link to a report that's in
22 press, and it was a report -- I believe it's a
23 statewide survey, soil survey, of 547 randomly
24 chosen fields throughout Illinois and in that report

1 they found that 59 percent of soil samples were
2 above the soil phosphorous levels requiring no
3 additional fertilization.

4 So clearly Illinois has a lot of
5 fields that have way more phosphorous than they need
6 from an agronomic standpoint. Our argument is when
7 you have more phosphorous than you need from an
8 agronomic standpoint, you are putting water quality
9 at risk, because the more phosphorous -- generally
10 speaking, the more phosphorus you have in your
11 field, the more phosphorous you are going to get in
12 runoff.

13 And Illinois -- USGS did a study,
14 and it was published a couple of years ago, and
15 basically they looked at what different states are
16 contributing to the Gulf of Mexico as far as
17 nitrogen and phosphorous, and Illinois ranks as the
18 top contributor of nitrogen and phosphorus pollution
19 to the dead zone of all states in our country.

20 So I believe it is very important
21 for Illinois to take steps to reduce the amount of
22 phosphorus that we have bioavailable in the
23 environment. And this rule is a fantastic
24 opportunity to do that. As we all know, there is

1 limited ability to regulate agriculture. Okay.

2 Thank you.

3 Q. On Page 10 of your testimony, Dr.

4 James, you recommend that the rules must include

5 limitation on winter application rates, and I just

6 want a clarification on whether the environmental

7 groups proposed phosphorous based limitation in

8 Section 502.630(d), whether that change is intended

9 to address your concern about winter application

10 rates?

11 A. Just to double-check before I say yes.

12 Q. Okay.

13 A. 502.630(d)?

14 Q. Yes.

15 A. Yes.

16 BOARD MEMBER RAO: Thank you.

17 HEARING OFFICER FOX: Anything else,

18 Mr. Rao?

19 BOARD MEMBER RAO: No.

20 HEARING OFFICER FOX: Very good. Ms.

21 Manning, on your part on behalf of the Agricultural

22 Coalition or Ms. Williams or Ms. Olson on behalf of

23 the Agency, any additional questions for Dr. James

24 at this stage?

1 MS. MANNING: No.

2 MS. WILLIAMS: We are just evaluating
3 whether we'll have a couple questions on the
4 proposal.

5 HEARING OFFICER FOX: I'm sorry.
6 Could you repeat that, Ms. Williams?

7 MS. WILLIAMS: We are conferring
8 about whether we have a couple of just proposal
9 based questions that will follow on your --

10 HEARING OFFICER FOX: Take a moment.
11 That will be fine.

12 C R O S S - E X A M I N A T I O N

13 By Ms. Dexter

14 Q. Dr. James, you mentioned the impact in
15 the dead zone of the overabundance of phosphorus.
16 Is that the only place we are seeing negative impact
17 from high levels of phosphorus, or do you see that
18 also in the state of Illinois?

19 A. We are seeing that also in the state
20 of Illinois. There are numerous lakes with
21 phosphorous problems. There is also rivers with
22 phosphorous problems. If you look at IEPA's own
23 305(b) reports, these are reports done every other
24 year assessing water quality of our water resources

1 here in Illinois. Phosphorus consistently ranks in
2 the top 10 as a cause of impaired waters in our
3 state.

4 You know, some of the visible
5 impact of too much phosphorous, you know, some
6 common ones would be algal blooms, which, of course,
7 pose aesthetic challenges for people, and high
8 phosphorous also negatively impacts aquatic
9 communities resulting in overall degradation of
10 water quality.

11 HEARING OFFICER FOX: Anything
12 further, Ms. Dexter?

13 MS. DEXTER: Not right now.

14 HEARING OFFICER FOX: Very good. Ms.
15 Olson or Ms. Williams, any follow-up questions?

16 MS. OLSON: Not at this time.

17 HEARING OFFICER FOX: Very good. I
18 think that will -- that has wrapped up our
19 questions for you, Dr. James, and thank you for
20 your testimony and responses.

21 What I would like to do at this
22 point is determine whether there is anyone else
23 present who intended either to offer testimony here
24 today or offer a comment. We had received comments

1 from nine persons earlier this morning. Is there
2 anyone present in the room who has not already done
3 so that wishes to testify or offer a comment?

4 (No response.)

5 HEARING OFFICER FOX: Neither seeing,
6 nor hearing any indication that there is anyone who
7 wishes to do so, I would like to turn just to a
8 couple of quick procedural issues since it appears
9 that our questions here today for the Environmental
10 Coalition, the Environmental Groups' witnesses have
11 wound down.

12 First of all, I do want to
13 address the issue of the economic impact study.
14 Under Section 27(b) of the Environmental Protection
15 Act, the Board must request that the Department of
16 Commerce and Economic Opportunity or DCEO conduct
17 an economic impact study of proposed rules before
18 the Board adopts them. The Board then must make
19 either that study or the Department's explanation
20 for not conducting one available to the public at
21 least 20 days before a public hearing.

22 In a letter dated March 22nd,
23 2012 our Board Chairman, Tom Holbrook requested
24 that the DCEO conduct an economic impact study of

1 this rulemaking proposal as filed by the Agency,
2 and the Board specifically requested a response no
3 later than May 1st, 2012. However, the Board has
4 received no response to that request from DCEO.

5 Is there anyone who would like to
6 testify regarding the Board's request for a study
7 or for the absence of a response from DCEO?

8 (No response.)

9 HEARING OFFICER FOX: Neither seeing
10 nor hearing anyone, I think we just have a quick
11 procedural issue or two before we can adjourn
12 today.

13 The original hearing officer
14 order setting the next hearing on Wednesday,
15 November 14th, in Jo Daviess County had set a
16 pre-filing -- deadline to pre-file testimony of
17 this Wednesday, tomorrow, October 31st, and Ms.
18 Manning I believe you wanted to be heard on the
19 record on the issue of that deadline.

20 MS. MANNING: I did, Mr. Hearing
21 Officer, on the basis of the quickness of this and
22 the next hearing isn't until November 15th, and
23 given that there was revised testimony that was
24 just put on the record on Friday that we heard

1 today, I would request an additional one week for
2 any pre-filed testimony prior to the Jo Daviess
3 hearing.

4 HEARING OFFICER FOX: So that
5 testimony would be due on Wednesday the 7th of
6 November?

7 MS. MANNING: Correct, and that would
8 be for whoever wants to do testimony.

9 HEARING OFFICER FOX: Is there -- do
10 either of the Agency or the Environmental Groups
11 wish to be heard on that motion for an extension of
12 the deadline by seven days?

13 MS. WILLIAMS: Just with the holiday
14 in the there also we'll be limited, but I don't
15 have an objection.

16 MS. KNOWLES: No objection.

17 HEARING OFFICER FOX: Ms. Williams
18 obviously has indicated no objection. I think I
19 heard a voice from --

20 MS. KNOWLES: No objection.

21 HEARING OFFICER FOX: Ms. Knowles has
22 indicated no objection. Ms. Manning, on the bases
23 you have laid out, I think that motion makes sense,
24 and certainly in the absence of objection from any

1 of the other participants, I'm happy to grant the
2 motion and extend the deadline to pre-file
3 testimony for the final hearing on Wednesday,
4 November 14th, at Jo Daviess County to Wednesday,
5 November 7th, and we certainly can provide more
6 time for you to file that.

7 I would ask to the extent that
8 any of the participants wish to pre-file testimony
9 for that hearing that the "mailbox rule" in the
10 Board's rules not apply since we will be receiving
11 it -- that that deadline is only seven days before
12 hearing, and that it be filed with the Board and
13 not merely postmarked by Wednesday, November 7th.
14 As in all other dockets and proceedings, electronic
15 filing is an option, and I think it's an option
16 that each of the chief participants have taken
17 advantage of. So with the grant of that motion, we
18 will extend that deadline as requested, Ms.
19 Manning, for any of the participants as you
20 correctly had pointed out.

21 Are there any other procedural
22 issues that we need to take up before adjourning
23 today? Neither seeing nor hearing any, we will
24 look forward to any pre-filed testimony by the

1 extended deadline of Wednesday, November 7th. We
2 will look forward, I am certain, to seeing many of
3 you in Jo Daviess County at the time, date and
4 location that are in that original hearing officer
5 order from April. We certainly want to thank the
6 participants for their testimony, for the response
7 to their questions and for the clarification on
8 these issues that they've offered, and we can
9 certainly adjourn. Thanks very much to all of you.

10 (END OF PROCEEDINGS.)

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1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF C O O K)
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6 I, LORI ANN ASAUSKAS, CSR, RPR,
7 do hereby state that I am a court reporter doing
8 business in the City of Chicago, County of Cook,
9 and State of Illinois; that I reported by means
10 of machine shorthand the proceedings held in the
11 foregoing cause, and that the foregoing is a true
12 and correct transcript of my shorthand notes so
13 taken as aforesaid.
14
15

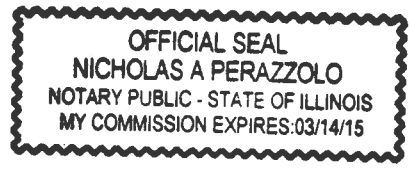
16 *Lori Ann Asauskas*

17 Lori Ann Asauskas, CSR, RPR.

18 Notary Public, Cook County, Illinois
19

20 SUBSCRIBED AND SWORN TO
21 before me this 13th day
22 of NOVEMBER, A.D., 2012.

23 *Nicholas A Perazzo*
Notary Public
24



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