ILLINOIS POLLUTION CONTROL BOARD

| | | |
|---|---|---|
| In the Matter of: Livestock Waste Regulations, 35 Ill. Adm. Code 506, | ) NO. R97-015<br>)<br>) DeKalb, Illinois<br>) January 27, 1997 | |

Hearing commenced at 9:05 a.m.

BEFORE:

ATTORNEY AUDREY LOZUK-LAWLESS,
Hearing Officer,
Illinois Pollution Control Board,
100 West Randolph Street, Suite 11-500,
Chicago, Illinois, 60601

ALSO PRESENT ON BEHALF OF THE IPCB:

Ronald C. Flemal, Ph.D.
Claire Manning
Anand Rao
Cynthia Ervin
Marie Tipsord
Charles Feinen

REPORTER:

Carrie L. Vaske,
Certified Shorthand Reporter,
Ashton, Illinois

INDEX

MS. LOZUK-LAWLESS: Good morning and welcome. My name is Audrey Lozuk-Lawless and I'm the Hearing Officer in this matter. Today present on behalf of the Board is Chairman Claire Manning and Board Member Dr. Ronald Flemal. We also have several attorneys here from the Board, Marie Tipsord, Mr. Chuck Feinen, Ms. Cindy Ervin, and from our technical unit we have Anand Rao, and excuse me, we also have Soni Hiten in the audience as well from our technical unit.

Today's proceeding is entitled Livestock Waste Regulations, 35 Illinois Administrative Code 506. Today is the second of five hearings which are scheduled in this matter. The first hearing was held on January 14th in Jacksonville, Illinois. The next hearing will be held on Wednesday in Galesburg, then on Friday in Mount Vernon, and finally the last hearing which has been rescheduled will be held in Champaign on Friday, February 7th.

Today's proposal was submitted by the Department of Agriculture. Today's hearing will be following the Board's procedures on hearings and any information which is relevant and not

repetitious will be allowed into the record. At the last hearing in Jacksonville we heard testimony of the Department of Agriculture, Department of Public Health, Department of Natural Resources and Illinois Environmental Protection Agency. There were questions put forth to those Agencies as well as some testimony from members of the public.

Today we will proceed with summaries from each of those Departments on the proposal followed by the testimony of eight persons who have filed prefiled testimony in this matter. After each one of those persons has testified, the audience and members of the Agencies as well as the Board will direct any questions they have to those persons.

After the testimony of the prefiled witnesses has been completed we will ask if there is anyone else in the audience who wishes to put forth any testimony on the record today. If you'd like to testify, you will be sworn in by the court reporter and subject to cross questioning. If you would not like to be sworn in or subject to cross questioning and still want to submit something on the record, feel free to do so by filing a public comment with the Board.

Your public comment must be accepted by the Board or submitted to the Board, excuse me, by February 14th, that would be Valentine's Day, at which time the record will close. If you do choose to file a public comment, please make sure you indicate at the top of the comment that this is Docket R 97-15.

Now I'd like to turn it over to Mr. Flemal if you have any opening remarks.

MR. FLEMAL: Yes, indeed I do. First of all I want to welcome everybody both on behalf of the Illinois Pollution Control Board and personally. DeKalb happens to be my hometown and we're thrilled to have you here in DeKalb. I assure you it does not always snow in DeKalb, that there are times when the weather is something other than snow.

Although some of the faces in the audience are familiar, there's also a good many of you for whom this would appear to be the first exposure you've had to the Illinois Pollution Control Board. I would like to take just a few moments to explain a few things about the Board and about the proceeding that we're engaged in at the moment.

The Illinois Pollution Control Board

consists of seven members. Chairman Manning and I are two of those seven members. The other five are off engaged in other Board business today. We are charged with a variety of activities dealing with the environment. We have a broad range of duties that are in the quasi judicial board of review area. We also as a second major arena of activity are responsible for promulgation of the environmental standards that apply in the State of Illinois. It's in the second of the two activities that we're engaged today.

I would note that over on the side table we have some brochures in the blue folders that you're welcome to have a look at which -- or take if you wish, that describe the Board's activities in the various arena and say -- says something as well about the composition of the Illinois Pollution Control Board.

In its rulemaking responsibilities the Board entertains anywhere from 20 to 30 rulemakings in any given year. This is one of those rulemakings. Some of the rulemakings are more elaborate than the rulemaking we have before us today, somewhat less elaborate. Most of those

rulemakings generate out of the Environmental Protection Act. This rulemaking of course today is unusual in several regards, one of which is that we are charged here under the Livestock Facilities Management Act to carry out our rulemaking responsibilities.

Any rulemaking that is done by an administrative agency like ours is required to go through a number of steps that are prescribed by the Illinois Administrative Procedures Act. It involves things like making sure that there's proper notice, that the proposals are published in the Illinois Register, that they are reviewed by a committee of the general assembly and so on.

These various activities require and consume a substantial bit of time and I would note that one of the additional unusual aspects of the rulemaking before us today is that it's a relatively short time frame in which we have to accomplish the various activities that are prescribed by the Administrative Procedure Act. Accordingly, we have been required to keep to this relatively short time frame and it's for this reason that we are holding our hearings in this

relatively accelerated schedule and also are asking that any additional public comments that be filed be filed a relatively short time after we complete the hearing portion of this record.

I would note that when the record is completed in mid February the Board will sit down and deliberate on the information that we've been able to gather as a result of this hearing process and the public comment period to follow. After reviewing that record the Board will make one of three decisions on how to proceed. One decision may be to proceed with the rule exactly as proposed. A second choice might be to proceed with the proposal but in some amended form, amended it to accommodate or accord with the comments that we receive from you and the suggestions that we receive from you. Or it's also possible that we would not proceed at all finding that it would be inappropriate to move forward on the rule.

Whatever the Board's decision is, that decision will be in a written form in a written opinion. Those of you that are on either the notice or service list will receive that opinion and accordingly be informed of the Board's decision

on the progress of this rule.

Just one last matter, let me introduce two people that we have in the audience, two State Representatives. Representative Dave Wirsing is in the back. Dave, would you stick up your hand and let us see where you are. Dave represents the local district, the 70th District including all of DeKalb -- most of DeKalb County and adjacent parts of Ogle and Lee County.

And Representative Ron Lawfer, Ron's over here. Ron represents the 74th District which is in the far northwest portion of the State including Jo Daviess, Stephenson, some bits of Carroll, Ogle and some Lee as well, Ron?

MR. LAWFER: Whiteside.

MR. FLEMAL: We welcome both of you and are pleased to have you with us.

MS. MANNING: I'd just like to welcome everyone as well and we look forward to your testimony.

MS. LOZUK-LAWLESS: I apologize there is no microphone available today. However, if you'd like to ask a question, please just stand and in a clear, strong voice so our court reporter can hear you, if you could just state your name, any agency

that you may represent and then state your question.

Also, Dr. Flemal had mentioned the notice list and service list. If you would like to be on the notice list and are not currently on the notice list, you can sign up at the table there or the service list. Persons on the notice list will receive copies of the hearing officer order as well as the Board order. Persons on the service list will receive both of those orders as well as any prefiled testimony or any prefiled questions.

So I'd like to begin today with Department of Agriculture. If the court reporter could sign (sic) them in, please.

MR. CHESTER BORUFF,

being first duly sworn, testified as follows:

MR. BORUFF: Well, good morning. On behalf of the Illinois Department of Agriculture we're pleased to see the interest that everyone has shown in coming out today to be at this hearing. In the back of the room, can you hear me all right? Okay, fine, thank you.

At today's hearing I will be offering a

summary of the written testimony which the Illinois Department of Agriculture entered into evidence with the Pollution Control Board at its hearing in Jacksonville. At that time two other employees of the Illinois Department of Agriculture, Scott Frank and Warren Goetsch to my left here, also presented testimony relative to the proposed rules. Mr. Frank and Mr. Goetsch will not be providing a summary today but will be available for questioning as the hearing proceeds.

My name is Chet Boruff and I'm employed by the Illinois Department of Agriculture as Deputy Director for the Division of Natural Resource and Ag Industry Regulation, a position I've held since entering the Department on July 8th, 1992. As Deputy Director I am responsible for the program areas of the Department dealing with animal health and welfare, natural resource protection, regulation of the feed, seed and grain industry and the weights and measures program.

I was raised on a grain and livestock farm in Rock Island County, Illinois. I received a Bachelor's Degree in Agriculture from Iowa State University, and prior to coming to the Department

of Agriculture I worked in agricultural finance, real estate and agricultural supply sales as well as operating a diversified grain and livestock farm.

Illinois has long been recognized as one of the leading livestock producing states in the nation. Due to its access to abundant feed supplies, strong markets and a well-developed infrastructure, the Illinois livestock industry has been a major contributor to the State's overall economy. Livestock production accounts for a sizable portion of the State's total gross income and several types of livestock species are produced in the State.

The livestock industry is undergoing major changes in structure due to economic and marketing forces which are not unique to Illinois. As a result it has become common for many operations to expand, specialize and invest in capital intensive production units in recent years. The livestock industry has been faced with challenges regarding market structure, access to capital, a limited supply of trained employees and increased regulations. In many cases in Illinois as well as

in other states, traditional and long- established livestock producers have chosen to leave the industry rather than to address the challenges I listed above.

In an effort to strengthen the industry and to position Illinois to become a continuing leader in livestock production, Governor Edgar convened the livestock industry task force in July of 1995. The task force, chaired by Becky Doyle, Director of Agriculture, includes representatives of the major livestock commodities sectors as well as representatives from the supporting industries including processing, veterinary medicine, livestock supplies and grain producers. The charge given to the task force was to consider those factors affecting the livestock industry in the State of Illinois and to make recommendations to Governor Edgar in the general assembly on ways that Illinois can continue to foster a healthy livestock economy.

The task force has addressed a wide range of topics focusing on areas of economic development, marketing, technology transfer and environmental concerns regarding livestock

production. In recent years many livestock operations in Illinois have expanded in an effort to take advantage of efficiencies which may be connected with these larger units. As the size of the operations has grown so has the amount of waste which is generated and must be ultimately disposed of by the operator of these production units. Many citizens have expressed concerns over the possible negative impacts these large volumes of waste might have on soil, water and air resources.

A working group of the task force dealt with this issue and suggested possible legislation to address it. The Illinois General Assembly used this suggestion as a framework for the Livestock Management Facilities Act which was signed into law by Governor Edgar on May 21, 1996.

The Livestock Management Facilities Act is intended to be preventative in nature since Illinois currently has statutes in place to deal with situations once pollution has occurred. The Act sets in place regulations providing for the proper siting, construction, operation and management of livestock management facilities and associated waste handling structures. It is the

intent of the Act to maintain an economically viable livestock industry in the State of Illinois while protecting the environment for the benefit of both livestock producer and persons who live in the vicinity of the livestock production facility.

Section 55 of the Livestock Management Facilities Act established a livestock management facility advisory committee made up of the directors of the Department of Agriculture, Natural Resources, Public Health and the Illinois Environmental Protection Agency or their designees. I was designated by Director Doyle to serve as a chair of the committee. The members of the committee were charged to review, evaluate and make recommendations to the Department of Agriculture for rules necessary for the implementation of the Act.

The Department was mandated by statute to propose rules to the Illinois Pollution Control Board for the implementation of the Act within six months of the effective date of the Livestock Management Facilities Act. Since the effective date of the legislation was May 21, 1996, the Department prepared its proposal for a filing date

of November 21, 1996. Section 55 of the Act also required that the Board hold hearings on and adopt rules for the implementation of the Act within six months of the Department filing a proposed rule for that purpose.

The committee met five times during the summer and fall of 1996 to review, evaluate and recommend amendments to various draft proposals developed by the Department. The Departments and Agency represented on the committee provided the vast amount of professional knowledge and experience on a broad spectrum of topics pertinent to the subject matter of the Act. The Department recognizes them for their efforts and appreciates their recommendations and input throughout the rule process.

The committee considered several sources of information such as technical papers, published design standards, pertinent information from other states and information provided by industry and private individuals as it made recommendations to the Department regarding the rule proposal.

In the fall of 1996 as the advisory committee was meeting to develop proposed rules for

the Livestock Management Facilities Act, concerns were raised to the general assembly regarding the absence of regulations since the permanent rules had not yet been developed. As a result the Department developed and proposed to the Board an emergency rule pertaining to portions of the Act, namely lagoon registration, livestock facilities sitings, waste lagoon design criteria, waste management plans and certified livestock manager training and certification. The Board adopted these emergency rules on October 31, 1996. These rules are currently in place until such time as the Board adopts the permanent rules.

I want to briefly summarize the rules which we have proposed to the Pollution Control Board. Subpart A sets forth the applicability, severability, definitions and incorporations by reference for the rule proposal. This subpart follows concepts developed and included in the emergency rules adopted by the Board under Docket R97-14. All but six terms defined within the section have been taken directly from the Livestock Management Facilities Act. Definitions proposed in the rules will further clarify concepts necessary

for the enforcement of the regulations. An important issue relative to the timing of the application of the setback needs clarification and the Department respectfully requests that the Board consider a further clarification of this important matter.

Subpart B of the proposal is organized into eight major sections and outlines the approach required of owners and operators of new or modified livestock waste lagoons for the registration, design and the structure, closure and operation -- or excuse me, and ownership transfers of such facilities. The proposal closely follows the emergency rules adopted by the Board. This subpart takes into consideration site specific investigation which is to be performed by the owner prior to registration and construction.

Design criteria is based upon recognized design parameters established by either the American Society of Agricultural Engineers or the United States Department of Agriculture Natural Resource Conservation Service. This subpart establishes criteria for construction of lagoon berms, monitoring wells, liners, lagoon closure and

ownership transfers.

Subpart C deals with waste management plans. The application of livestock waste to the land is one of the oldest forms of recycling and livestock waste has been used for generations to supply nutrients for crop growth and development. When properly applied, livestock waste can be a valuable resource. However, improper application may have a negative impact on surface and groundwater as well as detrimental effects to the soil.

Subpart C outlines the factors to be considered by a livestock producer who must prepare a waste management plan in accordance with the Act. This subpart outlines what information will be necessary to complete a waste management plan, establishes criteria for crop nutrient values, optimum crop yields, nitrogen availability and proper disposal methods for livestock waste.

Subpart D provides details for the establishment of a certified livestock management program intended to enhance the management skills of the livestock industry in critical areas such as environmental awareness, safety concerns, odor

control techniques and technology and the development of manure management plans. This subpart includes proposed language dealing with applicability and administrative details. With the Pollution Control Board's concurrence the Illinois Department of Agriculture intends to adopt further rules and procedures pursuant to authorities within the Illinois Administrative Procedures Act.

Subpart E of the proposed rules deals with penalties associated with violations of three areas of the Act namely, lagoon registration and certification, certified livestock manager status and waste management plans. This subpart is primarily devoted to cease and desist orders listed as penalties within the Act. This subpart also proposes that a waste management plan that is prepared as a result of a warning letter from the Department or compliance agreement shall be subject to review and approval by the Department regardless of the size of the facility. Also proposed is a statement indicating the penalties will not be imposed for excessive nitrogen application for unplanned cropping changes due to the weather or unforeseeable circumstances.

Subpart F deals with financial responsibilities and relates to Section 17 of the Act. The intent of this section is to ensure that in the event of a closure of a lagoon associated with a livestock management facility the cost of that closure shall be borne by the owner of the lagoon versus a unit of local government. Section 17 of the Act outlines surety instruments which may be used to ensure financial responsibility. With the concurrence of the Illinois Pollution Control Board the Department of Agriculture intends to adopt rules and procedures in a separate rulemaking process pursuant the Illinois Administrative Procedures Act.

Subpart G deals with setback distances which are intended to protect air quality and to control odors which result from livestock production but may be offensive to neighbors of individual operations. It is very likely that any livestock operation regardless of size will generate some level of odor by the very nature of the operation. Many factors contribute to the level of odor resulting from livestock production. The intent of establishing setback distances is to

provide for solution effects which will lessen odors coming from a livestock operation before they reach surrounding persons or homes. With the concurrence of the Pollution Control Board the Department of Agriculture intends to promulgate rules and procedures necessary to perform its duties and responsibilities under Subpart G in accordance with the Illinois Administrative Procedures Act.

In summary, clearly the issues which we face are complex, have far-reaching impacts and are not easy to resolve. As discussions have been held at several locations around the State over the last year and a half it seems that two main themes have emerged regarding livestock production in Illinois. First is one of providing protection for the environment and the natural resources of the State. This concern is not unique to Illinois and other states have dealt with the same issue in a variety of ways. The rules which we have proposed will serve to reinforce the preventative nature of the Livestock Management Facilities Act as intended by the Illinois General Assembly. The proposed rules take into account the most current design

standards and criteria, scientific information and production practices to ensure that the natural resources of our State are protected.

Another theme has developed which relates to the social and economic changes occurring within the livestock industry. Much has been said about protecting the family farm and restricting the size of megafarms as they are being considered in Illinois. The rules which we are proposing to the Illinois Pollution Control Board do not address the social and economic issues but rather provide for the protection of our natural resources. However, there are many producers and industry experts who would warn that the increased cost of regulations may actually lead to an acceleration of small to midsized livestock operations leaving the industry. As a result, the Illinois Department of Agriculture recognizes that the rules to be adopted need to be fair in their approach, economically reasonable in their implementation and based upon sound, scientific information.

That would conclude the summary that we have for the Board today and also we would like to enter into evidence two items which were --

actually three items discussed at the Jacksonville hearing. First of all would be a motion that the Board would accept the Illinois Agronomy Handbook and the Livestock Waste Facilities Handbook as published by the Midwest Plan Service as evidence into the hearing process; also a sheet that would allow for two revisions of Section 506 in the proposal that we had given to you earlier. So if I could enter these into evidence for you, and that would conclude our testimony.

MS. LOZUK-LAWLESS: Thank you, Mr. Boruff. Let the record reflect that the motion which has been filed by the Department of Agriculture incorporates into the record the Illinois Agronomy Handbook and Livestock Waste Facilities Handbook which was previously submitted in the record of the emergency livestock waste rulemaking which the Board has already adopted and therefore we will accept this as a motion but not enter it as an exhibit in today's proceeding.

The errata sheet No. 1 submitted by the Department of Agriculture will be admitted as Exhibit No. 12 into the record in today's proceedings.

MR. FLEMAL: Mr. Boruff, could you just briefly explain what that is in errata sheet No. 1 so that the people in attendance might have some idea of the subject matter.

MR. BORUFF: I'm going to have to ask for one copy back. I think I gave you all of them.

As you review what we had submitted into -- as an exhibit there, in the first one would be in addition to Section 506.303(r) of the proposed rules, and in that section it pertains to the application of livestock waste over grassed waterways as long as there's no erosion or loss or the -- what's applied in manure is not being -- is lost in that area.

What we have added there is the following which is underlined, "The distance from applied livestock waste to a nonpotable well, an abandoned or plugged well, a drainage well or an injection well is greater than 100 feet." What that would do is then make this line up with the code currently in place as it regards setback distances from those types of wells and would make the rules consistent with that.

The second section is an addition to

Section 506.303(v) and reads as follows: "A provision that livestock waste may not be applied during a rainfall or to a saturated soil and that conservative waste loading rates will be used in the case of a high water table or shallow earth cover to fractured bedrock. Caution should be exercised in applying livestock wastes, particularly on porous soils, so as not to cause nitrate or bacteria contamination of groundwaters." That was added just to make sure that in those cases where you might have high groundwater, maybe flooding situations or saturated soils, that we would try to make sure the animal waste did not get into the groundwater as a result of those conditions.

MS. LOZUK-LAWLESS: Thank you, Mr. Boruff, and as I mentioned earlier, the motion to incorporate the other documents into the record, they are now at the Board's office if anyone needs to see those records.

MS. MANNING: And they have already been incorporated, have they not, into our proceeding? We have incorporated all the exhibits from our emergency rule into our regular rulemaking.

MS. LOZUK-LAWLESS: No, we haven't done that.
MS. MANNING: We haven't done that?
MS. LOZUK-LAWLESS: That's what this is doing --
MS. MANNING: Okay.
MS. LOZUK-LAWLESS: -- for at least these two handbooks. Thank you, Department of Agriculture.
The Illinois Environmental Protection Agency, Mr. Rich Warrington, would you like to give your summary. If you could please swear in Mr. Warrington.

RICHARD C. WARRINGTON,

being first duly sworn, testified as follows:

MR. WARRINGTON: Good morning. My name is Rich Warrington. I'm Associate Counsel for Regulatory Matters for the Bureau of Water for the Illinois EPA. On behalf of our director, Mary Gade and Jim Park, Chief of the Bureau of Water, I'd like to welcome you here this morning and thank you for your interest in regulatory proceeding.
I'll be giving a summary of the testimony given by Jim Park at our Jacksonville hearing. If you'd like a copy of his full prefiled testimony,

we have copies available at the side table.

The Illinois EPA supports the adoption of R97-15. The addition of operator certification and the mandate for a livestock waste management plan for the largest of these facilities is a positive step in establishing consistent and responsible operation of livestock waste handling facilities. We endorse and encourage the training and educational programs set forth in these rules as a meaningful approach in making the agricultural community aware of the responsibilities and beneficial aspects of sound livestock waste management.

This program when fully developed promises to allow for the communication and the evaluation of innovative technology as it affects the development of the operator's waste management plan. The expansion of setback limits as mandated under the Livestock Management Facilities Act is also a necessary step in addressing the potential detrimental aspects of large livestock facilities.

We would like to make three separate recommendations that would improve the proposal as filed by the Department of Agriculture. The first

is that soil boring requirements are satisfactory for the vast majority of the sites in Illinois as prescribed under 35 Illinois Administrative Code 506.202(b). However, the Illinois Department of Agriculture needs adequate flexibility to require additional borings in the case of disturbed or mined land that may have altered hydrology and soil conditions or routes to groundwater via abandoned mine shafts. In these circumstances a single boring for a large 4- to 6-acre site would be insufficient.

Secondly, that based on experiences in Illinois and other states, the Illinois EPA recommends two further criteria be specified in the design standards of this subpart, both of which are addressed in the reference documents submitted by the Illinois Department of Agriculture with their original proposal. These are a prohibition on the use of outlet piping through the lagoon berm.

Section 4.6.2 of the American Society of Agricultural Engineers Standards Document states, "An overflow device with a minimum capacity of 1.5 times the peak daily inflow may be installed at the lagoon surface level only if the overflow is to be

contained in another lagoon cell or other treatment facility. Outlet devices should be installed in a way that allows effluent to be taken at a level 150 to 450 millimeters or six to eight inches below the surface."

This language seems to suggest that a subsurface outlet may be approved. The Illinois EPA is aware of a recent example in North Carolina where a lagoon slope failure was related to and possibly directly caused by an outlet pipe design of this type. The National Resource Conservation Service recently changed the North Carolina guidance document so that if any pipes are to be placed through the embankment, the location and method of installation shall be improved by the designer of the embankment. The installation shall be certified by the inspector.

It should be noted that this guidance document, although designated as a National Resource Conservation document, was developed specifically for and applies only to North Carolina at the present time. The Natural Resource Conservation document included in the proposal does not contain this guideline. The Illinois EPA

recommends in addition to R97-15 that either prohibits the use of the berm outlet piping through a berm outlet piping unless the piping discharges to another lagoon or require the Illinois Department of Agriculture's specific approval as called for in the North Carolina example.

And we would like to introduce as exhibits to our testimony a copy of that North Carolina specific Soil Conservation Service document and we also have a report from North Carolina on the design and the failure of that lagoon.

MS. LOZUK-LAWLESS: Thank you, Mr. Warrington. Let the record reflect that the North Carolina Ocean View Farms Waste Treatment Lagoon Engineering report has been marked as Exhibit No. 13. That report is dated July 19th, 1995. Let the record also reflect that Mr. Warrington has submitted Exhibit No. 14, Natural Resources Conservation Service Conservation Practice Standard Interim Waste Storage Ponds No. Code 425 which is hereby admitted into the record.

Mr. Warrington, do you have something else?

MR. WARRINGTON: Yes, the third recommendation

is a requirement for an emergency spillway. The Natural Resources Conservation document very clearly specifies under what conditions this is to be present. Lagoons having a maximum design liquid level of three feet or more above natural ground shall be provided with an emergency spillway or an overflow pipe to prevent over topping. Since this is not addressed in the American Society of Agricultural Engineers' document also included with the original proposal, a potential point of confusion exists that could be corrected by adding a specific provision to R97-15 for the design to include an emergency spillway.

And in conclusion, the Illinois EPA acting in its role for the Livestock Management Facility Act advisory committee has evaluated and made representations on a wide variety of issues presented on the subject of livestock waste management in the course of our deliberations. Those on this committee, the Department of Public Health, the Department of Natural Resources, and in particular, the Department of Agriculture, are to be commended for their efforts at drafting a well-reasoned set of proposed rules for the

Illinois PCB consideration. R97-15 represents a strong step forward in the effective management and prevention of pollution from large livestock facilities in Illinois. We encourage the Illinois PCB to adopt R97-15 and include our above-noted additions. Thank you.

MS. LOZUK-LAWLESS: Thank you, Mr. Warrington. Do you want to give us that -- do you want that to be submitted into the record?

MR. WARRINGTON: Which?

MS. LOZUK-LAWLESS: Did he give you something else?

MR. WARRINGTON: No, that was the same you had.

MS. LOZUK-LAWLESS: That was it, okay. Thank you, Mr. Warrington. Now we will proceed with the summary from the Department of Public Health, Mr. Clint Mudgett. Would you please swear in Mr. Mudgett.

CLINTON C. MUDGETT,

being first duly sworn, testified as follows:

MR. MUDGETT: My name is Clint Mudgett. I'm with the Department of Public Health and I'd like to report that the Department of Public Health

endorses the rules as proposed. We think they're reasonable and yet adequate to the protection of the environment and public health. We particularly endorse the requirement of bacterial logical monitoring and monitoring wells. We think that's an important consideration.

We appreciate the opportunity to participate on the advisory committee. We think it was open, particularly commend the Department of Agriculture for their ability and willingness to accept our representation. I've provided copies of my written testimony on the table over here and I encourage you to take a look at them. Thank you.

MS. LOZUK-LAWLESS: Thank you, Mr. Mudgett. Then with the final Agency, the Department of Natural Resources, Mr. John Marlin. If you would please swear in Mr. Marlin.

JOHN MARLIN,

being first duly sworn, testified as follows:

MR. MARLIN: Good morning. I am John Marlin with the Department of Natural Resources. I represent our Director Brent Manning on the livestock management facilities advisory

committee. DNR generally supports the livestock regulation proposal before us today. We realize its scope is somewhat limited by the constraints of the Livestock Management Facilities Act. We propose a modification in the definition of populated area to further clarify what a populated area is. We believe that the definition should be modified to make sure that lands managed for conservation or recreation purposes are considered populated areas as long as they meet the 50 person per week requirement. Additionally, we believe that the boundary line of such properties should be used when measuring the appropriate setback distances since we can think of no other measuring point that won't lead to massive confusion.

We appreciate the efforts of all the Agencies and parties involved in this proceeding, and I would like to introduce two exhibits which were requested at the last hearing. The first one is an Analysis of the Economic Impact Programs Administered by the Illinois Department of Conservation dated March 1990. The second is Estimated State and Federal Lands For Recreation State by State Listings, a May 1990 report.

MS. LOZUK-LAWLESS: Let the record reflect that the Estimated State and Federal Lands For Recreation State by State Listing has been marked as Exhibit No. 15 and entered into the record. And let the record reflect that the Analysis of Economic Impact of Programs Administered by the Illinois Department of Conservation has been marked as Exhibit No. 16 and entered into the record. Thank you, Mr. Marlin.

At this time what I'd like to do is unfortunately we have to have a little bit of changing here because we have several witnesses represented by the law firm of Ross and Hardies who are now going to testify who have prefiled testimony, and what I'd like to have is have them come to the front who will testify in the following order: Ron Warfield, Scott Jeckel, Jamie Wilrett, Ellen Hankes, Charles Nelson, Chris Schroeder and Randall Westgren. Thank you.

MS. LOZUK-LAWLESS: Would the court reporter please swear in all the witnesses.

(WHEREUPON all those were duly sworn.)

MS. LOZUK-LAWLESS: Mr. Harrington.

MR. HARRINGTON: I'll make a brief opening

statement. If anyone has trouble hearing me or hearing any of the witnesses, please put up your hand and we'll try to make sure that everyone is able to hear.

We're pleased today to be present and be able to present testimony on behalf of the Illinois Pork Producers Association, Illinois Beef Association and the Illinois Farm Bureau, in substantial part in support of the regulations as proposed and also in part to give background to these regulations in terms of the impact upon the agricultural community and the current status of that community in Illinois. Our first witness is Mr. Ron Warfield.

MR. WARFIELD: Members of the Pollution Control Board, thank you for the opportunity to address this Board today. I'm Ron Warfield, President of Illinois Farm Bureau. Illinois Farm Bureau is a general farm organization consisting of approximately 95,000 voting member families that is involved in receiving income from farm operations. These voting members are of all sizes and types of agriculture and consequently have a direct interest in the livestock industry in Illinois. I

personally operate a grain and livestock farm in Ford County near Gibson City, Illinois, consisting of 1850 acres. We also have had a confinement beef operation with a capacity of 600 head.

To begin with, let me commend you, Madam Chairman and Members of the Board, for the efforts you put forth last year to implement the emergency rules for the Livestock Management Facilities Act. Those rules and the permanent rules now being promulgated by you are the logical next step to protecting Illinois natural resources and the State's livestock industry. The Livestock Management Facilities Act was a proactive approach by the livestock industry, the Illinois Farm Bureau and other commodity groups. Those combined efforts and passage of the Act augment EPA's current title 35 regulations giving the Department of Agriculture and Environmental Protection Agency new powers to protect Illinois groundwater resources, one of the major concerns outlined by the governor's livestock industry task force.

The Illinois Farm Bureau believes that the legislature acted responsibly to ensure that all livestock facilities, both large and small, will be

operated in a responsible and accountable manner in Illinois. As the Pollution Control Board sets about the task of promulgating those permanent rules which are the subject of these hearings, I urge you to keep in mind the following points: First, most livestock producers and farmers continue to demonstrate that we are sound stewards of the land and of our State's natural resources. Farmers, our families and you breathe the same air, drink the same water, eat the same food and share the need for us to be both productive enough to produce quality food economically and profitable enough to stay in business. It is imperative that we as farmers show responsibility to our community and neighbors by running a safe and environmentally responsible operation.

Look at the track record Illinois farmers have built over the last 50 years. We spent millions of dollars to build terraces and waterways, purchase conservation tillage equipment and educate ourselves on new and innovative farming techniques. We intend to pass our farms on to our sons and/or our daughters as have taken place for generations in better conditions than when we

started farming.

Second, farming is also our livelihood and we must maintain our right to be able to operate our farms economically and expand our operations as necessary all in a responsible manner. Regulations must be reasonable and practical. Consumers demand food products meeting somewhat rigid specifications. Farmers are able to meet those specifications but they can only do so within an operating structure that will turn out the desired final product efficiently. We understand that some people feel the Act does not go far enough. On the other hand, it must be remembered that for producers both large and small it adds additional costs and regulations that affect the industry's ability to survive.

Third, the livestock industry is important to Illinois and the regulations promulgated must take into account that industry's economic importance today and factors that will enable it to be viable and thriving in the future. Livestock accounts for about $2.1 billion or 25 percent of the total annual farm cash receipts in Illinois. Hogs account for more than half of that total, beef

about a third and dairy about one-sixth. The most significant future growth in the Illinois livestock industry will come from the increase in exports and Illinois must be prepared for that growth and participate in it.

According to Phil Sing (phonetic), president of the US Meat Export Federation, the US is the second largest meat producer in the world and has focused most of its current production for the US domestic market, a mature market. Growth will now depend upon the export market. Mr. Sing stated the United States has increased its exports of beef, pork, lamb and veal more than 360 percent since 1981.

That increase was from $74 million then to 3.41 million in 1994. He's gone on to say that this country's balance of trade in beef has, in fact, increased from a negative $863 million in 1981 to a positive $800 million in 1994. Similar comparisons can be made for pork as well. The fact is that Illinois livestock farmers produce in a very competitive price sensitive consumer market domestically and internationally. Our need to compete in that marketplace cannot be ignored.

Fourth, the Board must promulgate rules under sound scientific principles considering the technology and research available to the industry, not sheer emotion. The Act requires that the regulations imposed be technically feasible. Imposing rules or standards which are not technically feasible puts livestock farmers out of business and eliminates a sizable source of economic activity for the Illinois economy.

For instance, in modern operations such as the ones being regulated by the Livestock Management Facilities Act, an Illinois EPA Title 35 regulations, livestock manure is collected and applied as organic fertilizer enhancing crop production. It is this organic fertilizer that your actions last fall set standards for if it is to be stored in a lagoon. The one item that is often confused by the public is the volume of waste being stored and used by farmers. Title 35 of EPA's current regulations shows that a lactating sow produces four gallons of waste per day. That is a far cry from the volume of waste everyone has been lead to believe is produced by hog confinement units. Facts based on sound research must drive

regulatory decisions.

Fifth, it is important for our livestock industry to have stable regulations from which future economic decisions can be made by farmers. The Act also requires that regulations and standards be economically reasonable. If overzealous regulation attempts to hold down growth and thus prevent economies of scale, they will ensure that small producers stay small. It will be these small producers who will not be able to expand their businesses and generate the necessary returns and profits for the future. If they cannot expand they will not be able to reach the scale which makes expensive environmental equipment cost-effective. Such an antigrowth strategy will only fuel the growth of the megaproducer who can afford the high initial cost of investment and the higher cost of production associated with many rigid regulations. That will be a victory for the very megasized operations the State has set out to regulate through the Livestock Management Facilities Act.

Beginning producers and small producers can produce pork, beef, milk or other farm products

at a cost per unit that can compete with the megaproducers as long as regulations are economically reasonable. Otherwise only the megafarms can survive. Clearly the task before the Pollution Control Board is mammoth. It took almost seven years to work out the details for EPA's Title 35 regulations when they were implemented in 1991 and they have served the State and the livestock industry very well to date. Those rules and EPA's enforcement of them enabled Illinois to maintain a reasonably competitive livestock industry. That is why we support the implementation of these regulations as soon as possible.

As you review what course of action you intend to take in the future, any action going beyond the technologically feasible and economically reasonable standards that the Act requires would be an injustice to the livestock industry and the people of Illinois, including the individual farmer and the consumer who will pay those additional costs associated with any new regulations. Illinois livestock producers request only the chance to produce in a competitive value-added product in an environmentally

responsible manner which is what the legislation was intended to accomplish. Thank you for your time to testify and I'll be happy to answer any questions in the time allowed.

MS. LOZUK-LAWLESS: Thank you, Mr. Warfield. Are there any questions of Mr. Warfield at this time? Hearing no questions then, Mr. Harrington, we'll go on to your second witness.

MR. HARRINGTON: Thank you. Mr. Warfield does have to leave now so if there are questions we need to make sure that they're answered. Hearing none, thank you.

SCOTT JECKEL,

being previously duly sworn, testified as follows:

MR. JECKEL: Hello, my name is Scott Jeckel. I'm a third generation pork producer from Delavan in Tazewell County. I'm a graduate of the University of Illinois with a degree in ag economics. I am vice president and manager of Jeckel Pork Farm, Inc. My father Russell Jeckel and his father John Jeckel started in 1950 with sixteen sows raising feeder pigs for sale. Currently we are an 1800 sow farrow to finish

operation. Our primary source of income comes from pork production although we farm 960 acres of ground. We employ ten full-time employees and six to eight part-time.

Today I'd like to give you some of our insight -- some insight into our perspective on the management of livestock manure. I think you need to start by not referring to the manure as livestock waste. We look at the manure from our facilities as a valuable commodity. All of our manure is returned to the land that we farm or sold to neighbors and applied on their ground. We have taken ground that 40 years ago many people told my father couldn't produce a good briar patch and turned it into as productive a farm as there is in Tazewell County.

We raise consistently high yielding corn and soybeans on our farm only purchasing supplemental nitrogen. All of our phosphorus and potassium comes from the manure produced on our farm. We have started selling some of the manure the last four years to neighbors for two reasons. We felt selling the manure would spread our land base and give us more acres to apply on.

Furthermore we feel we can improve our relationships with our neighbors by improving their profitability and ours.

Management is the key to our program. We apply the manure to fields with the lowest phosphorus and potassium levels. The fields we apply to are determined by using soil tests every three years. The fertilizer value of the manure varies greatly depending on what stage in the production process the manure comes from. Manure from the farrowing and nursery stages has very low fertilizer value due to the amount of water used to wash and maintain these areas.

Manure from the grow finish buildings has a great deal of value as fertilizer. We even find that variables like the feeders and waterers have a tremendous effect on the fertilizer value of the manure. There is a wide variation from farm to farm and building to building depending on the management processes. As we try to set forth guidelines for handling these products, we need to realize that there is no one-size-fits-all type of equation for the management of the manure. Animal species, ration digestibility, protein and fiber

content, even animal productivity, can also vary the fertilizer value of manure. We need to set forth guidelines that allow flexibility for the variations we've just talked about.

Landownership by the producer should not be a limiting factor. As I stated earlier, working with neighboring producers can be profitable for both the livestock producer and his grain producing neighbors. We are trying to cover our costs to apply the manure while supplying a form of organic fertilizer for less cost than commercial fertilizer. Records from our neighbors tell us that our manure has boosted yields on their grounds higher than they were when using even higher levels of commercial fertilizer than we are currently applying to their ground.

We must all face the fact that manure applied improperly can have more odor than manure applied properly. We inject all of our manure with a vacuum tank when conditions allow. This is probably the best way to utilize all of the value of the manure. On the other hand, because some of our facilities were designed 30 years ago we must apply some of our manure during the winter when the

ground is frozen. The only way to apply during these times is to broadcast on top of the ground. We try to take into consideration conditions such as wind strength, direction, short- and long-term forecasts to help us decide where and when to spread. By using common sense we have been able to keep odor to a minimum while placing the manure where it is needed.

Until technology to reduce odor is available and affordable, we must use common sense and the technology currently available to do the best job possible. We need to support the training of producers through the certified facilities manager program rather than increasing the penalties to producers for not following guidelines that may or may -- that they may or may not know about.

In conclusion, we as producers have a valuable resource in livestock manure. We can and must use it in an environmentally correct manner. If we use the manure properly we can increase our own profitability along with the profitability of our grain producing neighbors. This can lead to better relationships within our communities and

lead to better understanding of the goals and aspirations of all of us involved in agriculture. The economic impact of agriculture in the State of Illinois is overwhelming and we must be careful not to impede its growth. Thank you for allowing me to share some of my views with you today.

MS. LOZUK-LAWLESS: Thank you, Mr. Jeckel. Do we have any questions for Mr. Scott Jeckel at this time? No? Dr. Flemal.

MR. FLEMAL: Thank you very much for that testimony, Mr. Jeckel. A couple of questions, you note that your operation is an 1800 sow farrow to finish operation.

MR. JECKEL: Yes, sir.

MR. FLEMAL: Have you converted that to animal units or would you know in animal units roughly what that works out to?

MR. JECKEL: I've seen some of the sheets that would convert that but off the top of my head I don't recall, to be honest with you.

MR. FLEMAL: It would be a couple of thousand though.

MR. JECKEL: I'd like to see that in front of me. I've seen those sheets that can equate that

but I can't give you that.

MR. FLEMAL: Actually where I'm going is have you had a look at the regulations to see if these regulations were in place, what, if anything, would be additionally required in your own personal operation?

MR. JECKEL: Yes, I have.

MR. FLEMAL: Could you help us a bit by noting what those things might be.

MR. JECKEL: I don't know that I've -- again, it's been a little while since I've looked over these. I was at a local meeting of the pork producers last Thursday discussing the manure management plan. In specific one of the problems we do have with that is the quarter mile setback to a few individual homes, not necessarily our farm, but of neighboring farms. That's a bit of a problem. This individual is trying to stay within the rules set forth by the farm -- the FSA which helps us -- or the soil conservation service which helps us reduce runoff. He would like this applied on top so that he does not have to till this ground. He would like to no till beans to this following manure application. Therefore he'd like

this put on in the manure. We're having some trouble with -- we're not having trouble with the local neighbors but if followed by the rule, it would be difficult to put this on and allow him to remain in the program for the Farm Service Agency.

MR. FLEMAL: Your feeling on the whole, however, is that these are regulations that you can live with, they work for you?

MR. JECKEL: I think there are a few specifics. I would like to sit back and run through them and say hey, here's what I see as a possible problem. Before I say that, I don't think there's -- I don't think you've hit anything outlandish. I think there are a few specific things that may push some individual producers.

I'll just tell you, we sit within a quarter mile of a town of 2,000. Our first goal always is public relations. If you don't use common sense, you're going to be in trouble. For some reason we've done this for -- my dad's been raising hogs for 47 years. To my knowledge we've had a few people that say, gee, that's not the most attractive smell in the world, but we've -- through common sense we've been able to get through. We

try to do things for our neighbors that allow them to understand what we're doing. I think by being good neighbors and using common sense you can do some of these same things.

MR. FLEMAL: Do you use a lagoon as your primary storage or storage at all?

MR. JECKEL: We do have two lagoons on premises, one on the farm near town which was built four years ago, is strictly emergency. We do not use it as a regular basis but there are those winters when you cannot get on the grounds due to the weather conditions. We will use it in emergency then. Another farm has one. Primarily we try to have deep pitted buildings where the manure is stored beneath the pigs and then transferred to the land where it's applied.

MR. FLEMAL: I notice also that you do inject a fair portion of your field application.

MR. JECKEL: Yes.

MR. FLEMAL: At some time in the past it had been suggested that the Board look at as part of its Title 35 regulations a requirement that would require injection at least in certain circumstances. Somewhat experienced with

injection, is that the sort of thing that is suitable for regulatory requirement?

MR. JECKEL: It is for nine months of the year or the months of the year when it is fit to inject when it's not frozen. There are those times in the year when you really have no choice. Again, as I say, some of our facilities were designed 30 years ago with what technology was available then. Those pits do not have the capacity to go a year or six months. Some of that has to be spread on top of the ground during the months when it's frozen. At that point in time you cannot inject.

There's fairly good technology out there for the rest of the year so long as it's dry enough that you can inject it with very minimal odor. I inject within 50 feet of some of these homes and I have not had a problem doing that, but again, that's only available for those periods of time during the year when it's not frozen and it's dry enough.

MS. MANNING: In light of that, I appreciate your comments and your testimony as well, Mr. Jeckel. The statement that you made until we have technology to reduce odor which is available

and affordable we must use common sense, and I think you said and the technology currently available to do the best job possible. What specifically do you consider that current technology to be? Is it the injection that you're talking about or is there something else as well?

MR. JECKEL: If treated improperly waste smells, okay, or livestock manure smells. If I go spread it in your backyard you're going to have a problem with that. To my knowledge there's nothing that's easily affordable or found in the open marketplace to reduce odor or to turn it into what the swimming pool out here in the courtyard of this hotel smells like. We'd like to have that. I don't think it's available. If that comes available and it's affordable, hey, we should try to do that.

I don't -- the injection is a technology that's available. It is -- it's certainly worthwhile. It's improving all the time. There are newer injection systems coming out every year that are coming closer to allowing you to stay in the government program to reduce runoff from these fields, runoff of dirt. These sorts of things are

improving but they've not reached a stage where everyone can use them on a regular basis and have them work like we'd like to.

MS. MANNING: So when you say we must use the current technology available to do the best job possible, you're really talking about injection on your operation.

MR. JECKEL: On our operation, that's correct. To my knowledge now, maybe there's someone else here. I do not know of any technology that you can mix a liquid potion into your manure pits and the smell disappears. I don't think that's available.

MS. MANNING: I was just wondering what other technology beyond injection you might have used.

MR. JECKEL: Common sense. If it's blowing out of the south and you are the south side of town, you don't spread it. If you're on the north side of town and it's coming out of the south, that's the perfect time to do it. That's technology in a sense.

MS. MANNING: Management techniques too in terms of the operation.

MR. JECKEL: Management techniques are critical and common sense. Don't do things to -- if your

local town has a festival, don't do it the week before. I mean, those sorts of things are important.

MS. MANNING: Thank you. Mr. Harrington.

MR. HARRINGTON: I'd like to ask one clarifying question. With the no till farming techniques that are being developed today, is it always possible to use the injection?

MR. JECKEL: No, I don't think that's a fair statement. There are some that are coming awful close but I don't think that's the case. It's next to impossible to remain in the government program and inject livestock manure on ground at this time.

MS. LOZUK-LAWLESS: Thank you, Mr. Jeckel. Are there any further questions for Mr. Jeckel? Okay. Seeing none then, Mr. Harrington, would you call your next witness.

MR. HARRINGTON: Thank you. Next witness, Jamie Wilrett.

JAMIE WILRETT,

being previously duly sworn, testified as follows:

MR. WILRETT: Thank you for the opportunity to

provide this testimony today. My name is Jamie Wilrett. I'm a beef producer from Malta, Illinois, member of Governor Edgar's livestock industry task force and vice chairman of the Illinois Beef Association Checkoff Division. My family operates a farming and cattle feeding operation that has been in our family at its present location since my ancestors located in Malta Township in 1852. On my office wall I have receipts dating back 105 years for cattle sold by my father, grandfather, great-grandfather and my great greatgrandfather. Currently our operation is a partnership between me, my father and my father's cousin.

At one time five separate Wilrett families in one generation were making a living in agriculture. Today only two in the current generation make a living and support families through raising cattle and crops in northeastern Illinois. We have been through the best and the worst of times. We currently operate an 1850-acre farm and have an 1800-head feedlot that raises beef cattle for slaughter. Our feedlot is a confined feeding operation that houses animals on slatted floor buildings with concrete manure storage pits

underneath. We utilize the manure as a source of fertilizer and have applied this to our cropland on a rotational basis since we began confined feeding in 1966. We have injected manure into our soil since technology was developed to do this in the early 1970s and have never had a complaint filed against us.

I graduated in 1982 from the University of Illinois with a degree in agricultural economics and returned home to work on our farming operation. I became a partner in 1986. Over the years in order to provide enough income for my parents and later my family, our business had to expand our income producing capacity. This expansion required new facility construction.

The cattle feeding industry has gone through a period of significant consolidation over the past 30 years. Gone are the days when most farms had livestock of some kind on them as evidenced by the vacant feedlots and abandoned barns throughout rural Illinois. Economies of scale, efficiencies provided by different climates, adoption of new technology all lead the cattle feeding industry out of the corn belt and into the

high plains.

Today the largest 390 feedlots market 73 percent of all fed cattle sold and they have an average capacity of 24,000 head. None of these yards are located east of the Mississippi. Of over 26 million head of fed cattle marketed in the US in 1995, 460,000 head were marketed in Illinois by 5800 cattle feeding operations. In the nine years from 1986 to 1995, cattle feeding operations in Illinois have declined 37 percent. This is a tough business that operates on very thin margins and requires prudent management to survive. Competition is stiff. I compete with the large western feedlots for the same inputs, feeder cattle and feed stuffs on a national basis and sell my finished product to the same packers as the largest 390 operations.

I became active in the beef industry association through your county affiliate in 1982. I have kept up that involvement and have been active in the Illinois Beef Association since 1989. I have served on a national level as well since 1992. Through my involvement in the IBA I was nominated for consideration and was later

appointed by Governor Edgar to the livestock industry task force in May of 1995 to study the livestock industry, its impact on the State of Illinois and to make recommendations to the administration regarding the industry.

The task force was comprised of 19 people associated with the livestock industry in Illinois. We had producers, packers, advisors, farm managers and citizens concerned of livestock expansion. We divided into working groups to study different areas of concern. I selected the social and environmental subcommittee to work on. Our mission was to look at future expansion in the livestock sector and the concerns and challenges faced in satisfying both the public and the livestock industry. The committee invited representatives from concerned citizens and the industry to involve as much input as possible from everyone involved with this issue.

We met at a very aggressive pace in early 1996. The subcommittee tried to define the issues and then bring in as much background information and resources as we could. The Illinois Department of Agriculture assisted us in providing experts

from the Illinois EPA, University of Illinois Cooperative Extension Engineers and other resources as needed. We looked at what other states had done with regard to this issue. It became evident early on that there were two very distinct camps that differed in their views of the issues and the solutions. At every juncture the subcommittee tried to come to a consensus. After many meetings a document was crafted that was the basis for a report given to the whole task force. The report was passed by the task force and was used in drafting -- in the drafting of legislation of what is now the Livestock Management Facilities Act.

As a member of the social and environmental subcommittee of the task force, I assisted in the development of the Livestock Management Facilities Act, the basis of which is our report to the Governor. Contained in the report and in the Act as passed by the general assembly and signed into law by the Governor is this statement of policy, "Therefore it is the policy of the State of Illinois to maintain an economically viable livestock industry in the State of Illinois while protecting the environment for

the benefit of both the livestock producer and persons who live in the vicinity of a livestock production facility."

It is critical that the State of Illinois maintains a balance between the livestock community and the environment. I believe that the Livestock Management Facilities Act has accomplished these objectives. The Act was established -- the Act has established important proactive steps to ensure that any new facilities will be built to stringent environmental standards and that existing facilities will be managed by trained personnel in compliance with environmentally sound management plans. At the same time it allows family farmers like myself to expand our operations so that we can compete more effectively in the livestock market.

The rules proposed to implement the Act impose many significant requirements that livestock producers must comply with. The cost of compliance will be significant as producers adapt to technological and economic changes in agriculture. While I support the Act I remain highly concerned that the cost of compliance with the Act and the rules will become a burden too large for family

farmers like me. One of the foremost concerns shared by all members of the task force is that excessive regulatory costs will create a business climate where only well-funded corporate entities would have the financial, legal and human resources to respond to both market opportunities and regulatory mandates.

It is for this reason that I encourage you to scrutinize the proposed rules carefully and adopt what makes sense and is realistically feasible for family producers who must remain competitive in the marketplace. Our livestock management laws and rules must provide the same opportunity to every family farm to bring family members into their business as my parents were able to do and I hope to do. Let's be sure it remains financially feasible to do so.

As I mentioned earlier, agriculture is a very competitive business. We are commodity producers whose prices are set in the open marketplace. We cannot pass on higher costs for environmental regulations in the products that we sell. We must manage our risks and take what the market gives us. To remain profitable we must

manage our costs of production aggressively and integrate new technologies that lower our costs and increase our profits. However, you can rest assured that I am not interested in exchanging quick profit for environmental quality. My family has lived on our farm for 144 years. I live on the same farm where we raise our cattle and I live in the same house where my grandparents once lived. I have our wells tested and our drinking water continues to come from the same well. No one is more concerned about the environmental integrity of our facility than I am.

I see a bright future for livestock producers. As the world population grows and economies strengthen in Asia, Mexico and other regions of the world, the demand for beef increases daily. US choice beef is the standard for quality beef. I have planned my business to adapt new technologies like ultrasound carcass evaluation to enable me to produce the superior product in great demand today. I plan to stay in this business for the long haul for my children to have the opportunity to be a part of the business if they desire to do so.

Through the Livestock Management Facilities Act we have established adequate regulation of the industry. The rules that are adopted should support the Act and its legislative intent. The Illinois Beef Association is the spokesperson for all segments of the Illinois Beef Cattle Industry including cattle breeders, producers and feeders. The IBA represents 27,000 beef producers through 60 county, multicounty and breed affiliate organizations and is an affiliate of the National Cattleman's Beef Association. Thank you for the opportunity to provide this testimony today.

MS. LOZUK-LAWLESS: Thank you.

MR. HARRINGTON: I have a couple of additional questions if I could ask the witness at this time.

MS. LOZUK-LAWLESS: Certainly, Mr. Harrington.

MR. HARRINGTON: Mr. Wilrett, are you familiar with any situation where the Department of Natural Resources has acquired land in farming areas?

MR. WILRETT: Yes, I am.

MR. HARRINGTON: Could you describe one such situation.

MR. WILRETT: The one situation that I am very

familiar with is an operation that we have been running since 1979 in Jo Daviess County as a farm and cattle feeding facility that we owned at one time, since then ran for an investor and leased the feed yard ourselves and currently the DNR purchased that property in November of 1990 -- last November 1996.

MR. HARRINGTON: Will you continue to operate at that site?

MR. WILRETT: We have a one-year lease. I have an oral commitment for one year on that facility is what I have at this point.

MR. HARRINGTON: Do you have any adjoining property that you do own?

MR. WILRETT: Yes, I do. I own property adjacent to that.

MR. HARRINGTON: Would you expect that property to be the subject of further limitations if the Department of Agriculture develops the land they purchased as a park or nature preserve?

MR. WILRETT: Yes, I would suspect that and depending on the rules that are promulgated here through the Pollution Control Board as to how I would be able to operate that property in the

future.

MR. HARRINGTON: How far is the furthest border of that property from the land purchased by the Department of Natural Resources?

MR. WILRETT: I'm adjacent to it. It sits right beside it so just over the fence.

MR. HARRINGTON: Approximately how many acres do you own there?

MR. WILRETT: I've got about 90 acres on that property.

MR. HARRINGTON: Do you have any present plans to develop it for animal feeding?

MR. WILRETT: Presently I do not.

MR. HARRINGTON: Thank you. I have no further questions.

MS. MANNING: Do you have any livestock waste lagoons on that facility?

MR. JECKEL: No, I do not.

MS. MANNING: Do you have any livestock lagoons at all on your facilities?

MR. WILRETT: No, we don't use those. We are strictly concrete storage pits underneath.

MR. FLEMAL: I would assume that you have no plans as well in the future to use lagoons.

MR. WILRETT: No, I do not.
MR. FLEMAL: Given your 1800-head feedlot, I assume then that the way these rules would impact you were they to be put in place is require you to do the livestock, the management plan and have that on file in your facility -- at your facility and also require certification of somebody in the family, I presume, perhaps yourself, as an operator.
MR. WILRETT: Correct.
MR. FLEMAL: Is that your understanding of how these --
MR. WILRETT: Yes, that's my understanding.
MR. FLEMAL: -- rules would affect you? Have you looked over what's required or is proposed to be required as part of the management plan to see whether it includes items that are accomplishable by you or --
MR. WILRETT: Yes, I have. I looked at the emergency rules that you promulgated last year, took a close look at those.
MR. FLEMAL: So fishing for your reaction, is it sufficiency or adequacy or inadequacy that you see in that list of requirements?

MR. WILRETT: My perception on these and the adequacy is similar to what you heard from Scott in that what we're now trying to legislate is common sense that good producers have been using for the past -- since farming animal agriculture has been taking place. It will require more record keeping on my part. It will require more filings, documentation, making sure that my -- the people that are operating the equipment, they're documenting things properly. It will ensure a business plan, a manure management plan that is in writing and very detailed so it will -- it's another thing that will take more time in my operation, I'll have to spend more time in the office keeping track of.

MR. FLEMAL: Is there anything in the requirement that would cause you to operate it a different way than you do now as opposed to simply keeping different records or more records?

MR. WILRETT: From an operating standpoint, manure management, basically no. But depending on how the application rate is determined, if the manure application rate continues to be determined as based on nitrogen which is what my operation has

been utilizing, then we will be able -- we will continue to operate as we had in the past, rotating our manure and utilizing it to the most efficient use possible which makes economic sense.

MR. FLEMAL: One of the particular pleas that you make is that whatever happens in this rulemaking, it doesn't work to the detriment of the family farmer, you yourself being an outstanding example of that family farmer. We've heard this same plea from other quarters as well, but it appears that there's always a difficulty in defining what that family farmer means. If we were to decide that there is a different set of rules that applied to a family farmer as opposed to some other entity, corporate farmer has been used as the alternative, how do we make the distinction between the two of you? What stands one apart from the other?

MR. WILRETT: You ask an interesting question that everyone that's looked at this issue from both ends of the country to try and define. The US Department of Agriculture can't define it and they have passed some of that thought process on back to the states to try and define for the equipped

portion of the 1995 farm bill. Family operations can have many different forms of ownership, sole proprietors, there's corporations. There's families that have formed corporations for whether it's tax reasons or estate planning reasons. Sizewise you can -- you know, there are family operations that are quite large, and what is quite large? By some -- I have heard animal units as low as 500 being proposed as anything over that would be quite large.

In the cattle industry you wouldn't even be able to have one full-time person and be an economical unit, so you know, you're a mega at a half a person. You know, that's hard to swallow, so it's a very tough issue to answer and very hard to put it down on paper. Everyone has a thought in their mind, you know, mom and pop and the kids and the pitch fork and that's not the case.

MS. LOZUK-LAWLESS: Are there any other questions of Mr. Wilrett of anyone in the audience? Thank you. Seeing none, thank you, Mr. Wilrett.

Mr. Harrington, would you like to call your next witness?

MR. HARRINGTON: Next witness is Mrs. Ellen Hankes.

ELLEN HANKES,

being previously duly sworn, testified as follows:

MS. HANKES: Thank you. I'll share a bit of information about our family and farm before I begin with the testimony. I live on the family farm in which I grew up. My husband and I returned to that farm over 20 years ago after completing our education at the University of Illinois. I have a bachelor's and master's degree from that university and my husband also has several degrees from there as well. We are a family farm operation. We don't happen to be incorporated. My duties on that farm are varied and sometimes vary with the day, but my primary responsibilities are in the financial management area.

My name is Ellen Hankes, a pork producer from Fairbury, Illinois and also president of the Illinois Pork Producers Association. I will be making comments concerning my views as a member, and more importantly, as president of the Illinois Pork Producers Association, 6,000 members.

As a pork producer our family farm operation has been in business for over 50 years. Our current operation utilizes what is called multiple site production. On our home farm we farrow or raise from birth to market -- premarket age, 900 sows. Most of the pigs are finished out or raised until the pigs reach market weight at another farm site. It is our desire to continue this business as a viable way of making a living. I served as a member of the livestock industry task force subcommittee on environment matters until elected president of the Illinois Pork Producers Associates and before that participated on Senator Donahue's task force on large swine production facilities.

The livestock facilities -- the Livestock Management Facilities Act was initiated by persons who served on the environmental subcommittee after numerous hours of testimony, review of current Illinois regulatory requirements and other states' regulations. The Act was adopted by the livestock industry task force committee in February 1996.

The Illinois Pork Producers Association is taking and has always taken a proactive leadership

role in managing and protecting natural resources. The following are examples of our commitment to protecting the natural resources and working to solve the industry's problems. Recognizing the changing structure of the pork production industry from pasture to confinement and the potential for a different type of impact on natural resources, the association participated in the seven-year development of agriculture-related pollution regulations known as Title 35 in the 1980s. It is our belief that the adequacy of Title 35 regulations and the Illinois Environmental Protection Agency's enforcement of those regulations since their adoption in 1991 are the reasons why Illinois has not experienced the magnitude of environmental problems associated with livestock production that other states have experienced.

Recognizing the changing needs of the swine industry as it evolves, the association is currently involved in implementing the industry's voluntary national and environmental program, the environmental assurance program, to enhance swine management skills which help protect our natural

resources. This program has been recognized by the US Department of Agriculture and the US Environmental Protection Agency as a program that will dramatically address management skills in the area of environmental matters. A copy of the award and a one-page bulletin on the environmental assurance program have been included with testimony.

Nationally pork producers invested one and a half million dollars in environmental research and education. These projects have evaluated current management practices related to air quality, nutrient management and groundwater protection. Additionally pork producers organizations are investing in research in new technologies such as ozone, manure injection, constructed wetlands and nutrition's effects on manure.

Speaking as president of the Illinois Pork Producers Association I represent some 6,000 of its members. These production units vary in size from less than 100 animal unit facilities to those production facilities exceeding 7,000 animal units. The major portion of the production

operations are family owned, each trying to make a living in the ever changing agriculture economy. Most, if not all, of the members and their families live on farms that contain these facilities. Many of these family owned production facilities are incorporated for economic purposes.

Cheryl DeViest (phonetic) and David A. Lind (phonetic) in a document published by the University of Illinois in August 1996 titled Challenges Influencing Expansion in the Hog Industry offer the following: Quote, Structural changes continue in the hog industry. Small and midsized producers are struggling to survive and adopt to the industrialization and the integration of hog production. During 1995 the number of US hog operations dropped to 182,700, decreasing by 12 percent from the 1994 level.

As more producers drop out of the industry the largest production units continue to grow. Units greater than 2,000 head comprise 37 percent of the number of operations but account for 43 percent of the hog inventory in 1995. The next decade will, in my opinion, because of ever increasing regulation of the industry and more

widely market price fluctuations in the last decade, enhance the pressure and cause small family farms to give up and quit hog production.

One reason the wide market fluctuation will take place is because of the current Federal Agriculture Improvement Reform Act. This new farm law eliminates all crop production controls. Grain farmers will be producing profits where profits are available. Last year the price of corn, a major input in swine feed rations, soared to $5.50 per bushel. The price per hundred rate for swine in the last two years varied from a low of $28 to a high of $60 per hundred weight.

According to Chris Hurt (phonetic) one of the authors of Positioning Your Pork Operation to the 21st Century, 1995 Purdue University publication, used $2.26 per bushel for the corn for the last decade in making his projection concerning size of swine production facilities and their ability to remain financially solvent and use new production technology. This document analyzes different size operations by the number of sows. New technology and major efficiencies are in most cases not viable until you reach a 1200 sow farrow

to finish stand alone or hog production only swine operation. Hog operations smaller than 1200 sows that have integrated other businesses such as grain farming or have some other source of outside income may be viable.

In a nutshell, operations must be allowed to grow; therefore, it is impossible to set a fixed figure for animal units. Chris Hurt made an analysis of different size production facilities. Quote, to capitalize a 1200 sow farrow to finish unit you would need $3,817,939 for land and buildings and $2,562,267 production capital, closed quote. Again, $2.26 bushel corn was used for these calculations along with other feed components at comparable prices. The break even production cost today is in excess of $47 per hundred weight for this size operation.

The 1200-sow farrow to finish unit is the smallest size that can utilize capital, new production technology and provide sensitive management. Economically it is questionable if a 1200-sow unit can survive. The current recommended size is a minimum of 2400 sows farrow to finish.

Chris Hurt summarizes changes occurring in

the industry as follows: Quote, many current producers have high costs, utilize data technology, have small diversified farms which retard their ability to gain managerial intensity and are nearing retirement age without sufficient sizes of operation for someone else to come in to acquire and operate. They will likely be replaced by larger, more specialized and more managerially intense operations. If economic advantages of improved coordination of production and processing are evident, the Midwest Illinois industry will be forced to find ways to reduce variability, to improve marketing for producers. In other words it will have to move away from a traditional commodity orientation toward a consumer and cost-driven pork system, end quote.

To quote Chris Hurt, quote, changes make people anxious. The realization of participants from the farmer to those in the input and marketing sectors is that their specialized physical and human resources will become worthless if they can not be a part of the new pork industry. The question extends beyond those directly in their -- involved in their industry. How do production

practices and higher concentrations affect water and air quality? Will the farmer lose the traditional independent status? Some implications seem evident at this time. Others will depend on the decisions made by industry participants and public policy holders, end quote.

Since the promulgation of the livestock waste regulations is in your hands, we are depending on your decision for our economic survival. With all of the economic challenges that we face, we must ensure that the rules that you are considering do not impose additional economic hardships. Do not misunderstand us. The Illinois Pork Producers want rules that are protective of the environment.

As I mentioned before, most members draw their drinking water from wells located on their farms. However, any rule that restricts growth and places unreasonable economic burdens in return for negligible environmental protection must be rejected. Although we believe that some changes to the proposed regulations which will be presented to the Board in testimony at a later date are needed to implement the Livestock Management Facilities

Act, in general the proposed regulations seem to strike the correct balance between economic and environmental concerns.

The future for swine production can be financially rewarding if prudent, justified, technical and economically feasible decisions are made. The research is implemented to help solve problems and some changes are made to proposed regulations to implement the Livestock Management Facilities Act to make the requirements compatible with current industry practices. The recommended changes will be presented to the Board in testimony at a later date. Thank you for consideration of my comments.

MS. LOZUK-LAWLESS: Thank you, Miss Hankes. Mr. Harrington, I was wondering, do you have a copy of the one-page bulletin of the environmental assurance programs which you referred to?

MR. HARRINGTON: Yes, we'll provide that at this time.

MS. MANNING: Could you also provide the Chris Hurt publication, the University of Purdue publications?

MR. HARRINGTON: Yes, we'll provide both of

those.

MS. HANKES: I also would like to enter an additional document, the Measured Effects of Feedlots on Residential Property Values in Minnesota, a Report to the Legislature.

MR. HARRINGTON: Excuse me, is that the Major Impacts?

MS. HANKES: Measured Effects.

MR. HARRINGTON: Measured Effects, thank you. With respect to the document you just tendered to the Board, are you familiar with the contents of that document?

MS. HANKES: I have read it, yes.

MR. HARRINGTON: Could you very briefly tell us what its conclusions were as you understand them.

MS. HANKES: The study was sponsored by the University of Minnesota and at the request of the Missouri (sic) State Legislature. The project looked at property values, i.e., sales of real estate within I believe a two-mile area of feedlots in two counties in Minnesota. Several hundred property exchanges were studied, and while the authors thought that property values would be neglibly (sic) impacted what they found to their

surprise was that the closer the proximity to feedlots in Minnesota, the higher the property value as experienced by that sale of property.

MS. LOZUK-LAWLESS: Thank you, Miss Hankes. Let the record reflect that the Measured Effects of Feedlots on Residential Property Values of Minnesota, a Report to the Legislature, has been entered as Exhibit No. 17. Are there any questions of Miss Hankes from anyone in the audience? Any questions from the Board? Dr. Flemal?

MR. FLEMAL: You use the reference of a 1200-sow farrow to finish unit as kind of a standard operation. What would that be in terms of an animal unit, the kind of unit that is involved in this proposed rule?

MS. HANKES: I think it would be fair to say that that would fall between the 1,000 -- it would fall over 1,000 animal units. I don't have that number specifically.

MR. FLEMAL: And certainly under the 7,000.

MS. HANKES: Yes.

MR. FLEMAL: So it would fall in that window where a management plan is required, operator certification is required.

MS. HANKES: Yes.

MR. FLEMAL: And if there was to be a lagoon used as the storage unit, that lagoon would also be involved in the regulation. That's your understanding?

MS. HANKES: That's my understanding.

MR. FLEMAL: Have you reviewed those aspects of the proposed rule to have some understanding of how if this rule were to be implemented it would actually affect operations, say, like your own?

MS. HANKES: Yes. Certainly the manure management plan is not required at our level with 900 sows. We are farrowing those sows on that site. They are finished at another site. However, I think it's in -- and I've been telling producers this, that it is in their best interest to work towards that plan, we would do that. We would participate in the education program in the certified manager training, and I would expect that both my husband and I and probably several others there at the farm would participate in that. We have always supported educational programs as most producers have.

MR. FLEMAL: Your own operation then is below a

couple of these cutoffs as opposed to the 1200 unit that you were talking about as a standard unit.

MS. HANKES: It is smaller than that 1200-sow standard unit. It would be above the 300-animal unit threshold for the certified manager training and below the 1,000 animal unit for the required manure management plan.

MR. FLEMAL: I see. A question I suppose as much for Mr. Harrington as it is for you, we will be hearing in the future some suggested amendments to the proposed rule that --

MR. HARRINGTON: As we go through the hearing we're refining those suggestions and presenting them to the Board. Perhaps just to clarify something, Mrs. Hankes, does your facility have a lagoon at this time?

MS. HANKES: We do have a lagoon. Several years ago as part of our process, and it seems like we're always in some sort of an update process, we did install a lagoon to better manage odor and nutrients. Because we are a family farm and have been in the business of raising livestock for a number of years, we were concerned about utilizing the nutrients in the very best way on land near the

facility, the farm on which I live and where the hogs are located. And so as part of the technology that was available at the time, we remodeled some of our buildings to utilize the flush water from the lagoons. We installed a two-stage lagoon where the sows are settled and the remaining effluent goes into the lagoon, and then that sort of process enabled us to transport to use the liquids and the solids in a more specific manner to address nutrient needs on other fields that were further away that we could no longer haul with the smaller equipment.

MR. FLEMAL: The membership of the Illinois Pork Producers certainly I expect contains -- will consist of people who would be clearly recognized as family farmers on one hand and this other entity that stands out here as the corporate farm on the other hand. Can you as president identify who belongs in either of these categories or likewise do you have the difficulty that Mr. Wilrett expressed in making the distinction sometimes?

MS. HANKES: Our organization is a grass roots membership organization. At this time membership is only held by those who join county or a

multicounty organization and that's where membership originates, and so the producers who choose to be involved with local organizations are the ones whose membership then is involved with the Illinois Pork Producers.

As far as an average member or profile on that member, we really have no specific member, but I think it's fair to say that educational components have been very strong from county all the way up to state, to national and so on learning to do a better job of what we do as producers.

MS. MANNING: Mrs. Hankes, thank you for your testimony. I had some questions regarding the possibility of federal funding. I've been reading some articles in our Springfield Journal Register about a program called EQIP, E-Q-I-P, which I believe the Illinois Pork Producers and the pork producers nationally are involved in in terms of it looks as if maybe turning some federal dollars into Illinois dollars for environmental technology and environmental benefit on the family farm and on the farms.

I'm not sure what I know about that program at all and I would like if you could to

enlighten me in terms of the possibility of availability for federal dollars for environmental technology in these areas.

MS. HANKES: I wish I could tell you more than maybe I'm able to today because the process is still being defined at the county level. I know locally in my county we had several meetings set the last couple of weeks and then due to the weather they had be canceled and rescheduled to look at what is available through the EQUIP program. As I understand it the program is to assist with some cost-sharing techniques that could be applied on farms to better manage natural resources through livestock production facilities. What remains to be seen is who is eligible for this -- these cost-sharing funds, and part of that controversy is where that number should be set, is also bound up with arguments similar to what this Board has discussed.

MS. MANNING: So there are arguments regarding lagoon technology and things like that through the EQUIP program as well?

MS. HANKES: EQUIP is not only dealing with the lagoons but other ways of assisting with the

process. Constructed wetlands is one --

MS. MANNING: Stream runoff -- dealing with stream runoff as well?

MS. HANKES: Structure that can be applied or processes that can be applied on the farm.

MS. MANNING: Okay. Is there a position that the Illinois Pork Producers has taken in this debate or you know, trying to seek certain kinds of dollars for technology for your producers?

MS. HANKES: Historically the Illinois Pork Producers has not seen federal dollars available for on-farm use in livestock facilities so this is somewhat new to us, very new to us. We have not taken -- well, the position that we are I guess currently exploring is that size limit, you know, where do we think that should be; and frankly, we think that protection of natural resources is important for all sizes of operators, and so if a limit is set above which an operator is denied matching funds, then it seems that perhaps we're saying it's not important or for whatever reason that that sort of entity shouldn't be involved with that, but we feel like protection of natural resources is important so we would like to see the

window as large as possible for producers to receive cost-sharing funds.

MS. MANNING: Is this program a US Department of Agriculture program or a US EPA? It's a US Department of Agriculture.

MS. HANKES: USDA. As I understand, Secretary Glickman asked the states to set the limits, the parameters of it rather than doing it on a federal.

MS. MANNING: Thank you.

MS. LOZUK-LAWLESS: Any further questions of Miss Hankes?

MR. HARRINGTON: May I just ask a couple of clarifying questions for the record? You mentioned that your farm is below the 1200-sow farrow to finish level that you said was economic. Can you explain the nature of your operation that makes it economic.

MS. HANKES: Sure. What I referred to in my testimony for the 1200-sow farrow to finish is a stand-alone unit, an enterprise in which no additional businesses would be accounted for. Many of our members of the Illinois Pork Producers are not unlike our own particular family farm operation in that we have a combination of crops. We raise

corn and soybeans and then we also have a livestock operation.

For many of us we market that grain, that corn and soybeans through our livestock, whether it be for hogs or whatever, and it's part of a whole systems approach. And again, the utilization of those nutrients from the manure is part of that total system that we employ.

MS. LOZUK-LAWLESS: Thank you. What we'd like to do now is take a ten-minute break.

(A recess was taken at 10:57 a.m. and proceedings resumed at 11:15 a.m.)

MS. LOZUK-LAWLESS: Let's go back on the record. Mr. Harrington, you wanted to submit these two exhibits?

MR. HARRINGTON: Yes, I did.

MS. LOZUK-LAWLESS: Then let the record reflect that the US EPA Liquid Assets of Summertime Perspective on the Importance of Clean Water to the Nation's Economy has been marked as Exhibit No. 18, and Positioning Your Pork Operation for the 21st Century, a 1995 Purdue Co-op Extension Service Report has been marked and entered into the record as Exhibit No. 19.

All right then, Mr. Harrington, would you like to call your next witness?

MR. HARRINGTON: Yes, my next witness is Mr. Charles R. Nelson. Mr. Nelson.

MR. NELSON: Good morning. I want to thank you for the opportunity to address the Board today. I'm Charles R. Nelson, a nutritionist for DeKalb Feeds, Incorporated in DeKalb, Illinois. I'm a graduate of Iowa State University, a member of ARPAS, the American Registry of Professional Animal Scientists, a member of the American Feed Industry Nutrition Council and I have over 40 years' experience in the livestock and feed industry. DeKalb Feeds is a major supplier of feed supplements in Illinois.

My testimony here today is to present data to establish the economic returns of feedlot beef industry in Illinois, and to my knowledge DeKalb Feeds has the largest data of economic records of cattle feeding in Illinois. I helped establish this database over 25 years ago and have continued to expand it with the help of my associates at DeKalb Feeds. We currently have economic records on over a million head of cattle. This data was

generated from numbers that we obtained from our customers' closeouts. We have worked hard at trying to make our clients better business people by encouraging them and assisting them in making these economic closeouts.

We publish this data every year and present it at our annual Beef Day. I have enclosed two pages from our 1996 report, Page 5 and Page 21. Page 5 shows the average profit over the last 25 years has been $23.32 per head. Page 21 shows a work sheet of overhead costs in producing beef. These are the costs that are over and above the cost of feed.

Feed costs were priced at actual cost. High moisture corn was stored in silos, was priced at the time of harvest as was the silage. This might give some additional benefit to the feeder because we priced it on a dry matter basis rather than with a typical elevator discount if marketed through normal channels. This could be 5 to $10 per animal or 10 to 26 cents per bushel extra return.

Long-term beef production has been profitable, but as you can see, the profits are not

high. For example, 500 head per year marketed at $25 per head would generate $12,500 return. The beef industry is important to Illinois as total cash receipts are in the area of $700 million. I feel it is important in working out the details of Title 37 regulations that the regulations are economically sound and reasonable so as to not cause undue hardship to the industry as it would reduce the economic returns that have not been at a high level. Most producers' goal is to produce a quality product and to be considerate of environmental issues. Thank you for this opportunity to testify.

MS. LOZUK-LAWLESS: Thank you, Mr. Nelson.

MR. NELSON: I would have a report here if you'd like a complete copy. I did submit two pages but if you want a copy of the complete report, you can have that for your records.

MR. HARRINGTON: Mark that for the record.

MS. LOZUK-LAWLESS: Yes. I'd also like to note for the record that Mr. Nelson testified that this could be in his testimony I think you said 10 to 26 cents. I don't know if our court reporter heard --

MR. NELSON: It could be 10 to 20 cents per

bushel extra return.

MS. LOZUK-LAWLESS: Thank you. Then for the record we will mark as Exhibit No. 20 the DeKalb Feeds, Incorporated 26th Annual Beef Day February 1996 report. And let the record reflect that the two pages which recited in Mr. Nelson's testimony are those two pages which are included in the report, Page 5 and Page 21. Are there any questions for Mr. Nelson from anyone in the room? Dr. Flemal, do you have any questions of -- thank you, Mr. Nelson.

Mr. Harrington, you may call your next witness.

MR. HARRINGTON: I'm going to at this time call two witnesses who will be making essentially a joint presentation, and that is Randall Westgren and R. Christopher Schroeder, and there are slides being shown. Copies of the slides were attached to the prefiled testimony that was sent to the service list and served on the Board.

MS. LOZUK-LAWLESS: Then if you'd like to enter in the prefiled testimony or just those slides, we could enter those as an exhibit.

MR. HARRINGTON: I would suggest we enter the

prefiled testimony and the slides together as an exhibit.

MS. LOZUK-LAWLESS: Do you have another copy of that?

MR. HARRINGTON: Yes, we'll produce it right now. The copy I'm about to hand you has a few corrections from the prefiled testimony updates.

MS. LOZUK-LAWLESS: Okay, thank you. Let the record reflect that the testimony which is now being filed by Randall Westgren and Christopher Schroeder would be marked as Exhibit No. 21 which includes their testimony as well as the slides which we are about to see today. Thank you.

MR. HARRINGTON: Gentlemen.

RANDALL WESTGREN,

being previously duly sworn, testified as follows:

MR. WESTGREN: Thank you to the Board. My name is Randall Westgren. I'm Associate Professor of Agricultural and Consumer Economics at the University of Illinois, Urbana-Champaign. I am joined by Christopher Schroeder, a partner in the firm Agricultural Education and Consulting, AEC, of Savoy, Illinois. We are presenting this testimony

based upon our analysis of proposed rules for the livestock waste regulations. AEC was commissioned by a consortium of Agricultural Producers Association to undertake an economic analysis of the proposed rules. I was subcontracted by AEC to participate in this study; therefore, my comments reflect my views and those of Agricultural Education and Consulting, not the University of Illinois.

I received a Ph.D. in agricultural economics from Purdue University and have held faculty positions in this field since 1978. Christopher Schroeder received a master of science degree in agricultural economics from the University of Illinois and has been a consultant in ag business management and finance for 12 years. Neither of us hold ownership interest in livestock production operations in the State.

We will proceed with some premises on which our analysis is based. Our analysis will be based upon two documents appended to this narrative. Appendix one is a series of slides which we will present in a few moments to the Board in the order which they appear in the appendix. We

will make comments about the slides and answer questions subsequently that you may wish to raise.

Appendix two is a document that shows the initial costs and the annual operating costs associated with five scenarios of operations under the proposed rules. These scenarios represent archetype cases of different sized operations located in different areas of environmental sensitivity as defined in the proposed rules. We will present the detail of this spreadsheet to the Board as required including the underlying assumptions and logic of the analysis.

Our analysis is concerned with boundaries and costs. The proposed rules for livestock waste management have two types of boundaries imbedded in them, the size of the operation and the depth of aquifer material below proposed lagoon sites. As one crosses the boundary between an operation of less than 300 animal units to an operation of 300 animal units or more, the proposed rules change the requirements of the operator. Likewise when the scale of an operation crosses the boundary between less than 1,000 animal units and 1,000 animal units and above, the operator has different

requirements.

The proposed rules have two physical boundaries associated with the siting of a livestock waste lagoon above aquifer material. If the required soil boring shows no aquifer material within 50 feet of the floor of the proposed lagoon this is deemed to be the least sensitive category of siting. Between the boundaries of 50 feet and 20 feet below the line floor of a proposed lagoon if one finds aquifer material, then the design requirements are different reflecting a more environmentally sensitive site. If aquifer material is found in the boring sample at a depth less than the 20-foot boundary, then design and operation specifications reflect that this is the most sensitive type of site under the regulations.

The physical boundaries associated with environmental sensitivity as measured by depth to aquifer material are important to our analysis as they are trigger points for additional construction and/or operating costs of a new lagoon regardless of the scale of the animal operation. Our analysis takes these boundaries as given and we make no effort to estimate costs associated with changing

these fiscal boundaries in the rules. Good management practices in the livestock industry require sound management of livestock waste and we will examine only the costs associated with crossing these boundaries under the proposed rules.

The boundaries associated with the sale of operations under the proposed rules are perhaps more critical to the economic analysis. Over the course of the history of a given livestock operation the depth to aquifer material is fixed and does not represent a decision variable to the operator. By contrast, the boundaries set at 300 and 1,000 animal units may come into play as a family farm seeks to expand as a normal business decision perhaps to accommodate the addition of a new generation of owner-operators among the sons and daughters of the current owners and perhaps as a response to new market opportunities.

To the extent that the permanent rules set these boundaries, they may affect the normal growth trajectories of existing farming operations in the State. Our analysis takes as given the proposed scale boundaries and our scenarios will show the

extent to which the economics of compliance with the proposed rules are sensitive to these boundaries. As the exhibits in Appendix one show, we approach this economic analysis of livestock waste management rules by identifying two types of costs, the economic costs associated with capital investments and annual operations and the cost of risk associated with compliance.

The economic costs are well understood and one is able to estimate within a range what will the cost of, say, a synthetic liner for a lagoon be. However, the uncertainties surrounding enforcement, construction delays associated with compliance, inspections and the cost of showing evidence of financial responsibility are less well specified. What of the possibility of reregulation in the future, including retroactive coverage of existing waste management facilities. This type of uncertainty is even less tangible in 1997. Nonetheless, these costs of uncertainty are vitally important to a complete analysis of the economic impact of this and other regulations.

We will begin our presentation of our analysis contained in Appendix one. We thank you

in advance for the opportunity to appear before you and we will be glad to answer questions at the end.

You have heard in previous testimony the importance to the State of livestock agriculture, including the industry economics for pork production. You have heard that there have been demand growth projections now and into the future which represent an opportunity for existing and new animal agriculture operations in the State. You have heard about the job impact of this industry in the State of Illinois and how they related to other industries, including feed, processing and the related services associated with bringing livestock commodities to the consumer's table. Likewise you have heard some testimony about the economics of farm size, that there are several drivers in the economics of animal production which affects the size and scale of operations now and into the future.

Health of the herds associated with these animal operations is an important factor in leading us to larger, more specialized operations. As was mentioned earlier, multiple site production in the

pork industry is an example of a technology to improve the health status of the herds and bring a better product to the consumer.

Labor: Labor is difficult to find in animal agriculture in an industrialized state and finding technologies which make good use, economic use of labor may lead to larger scale operations. New technology, including new improved genetic lines for animal agriculture, are important drivers in the development of the scale of operations in the State.

Finally, market access. We need to spread the high fixed costs associated with many of these drivers of economics over a large volume of output because as was mentioned earlier, margins are tight in these businesses and therefore some scale of operation is necessary to make them economically viable.

We identify two costs to the producer. The first type of costs are the compliance costs which include initial planning, additional construction and construction costs, ongoing operating costs and closure assurance under the proposed regulations. We will look at each of

these in turn.

There are also what we call risk costs. Consider the farm that is thinking about pouring concrete in the spring of 1997 to take advantage of increased market demand for livestock. We are facing an untested legal environment, uncertainty of enforcement interpretation and possible future reregulation of the industry.

Let us turn to the initial planning costs. Under the rules there are costs associated with registration of new lagoons, costs associated by -- pardon me, with site planning by a licensed, professional engineer; soil boring and profile analysis which may be certified by a certified geologist or a licensed, professional engineer; base line water testing of monitor wells; the preparation of a waste management plan which may take many hours of a producer's time or many dollars from a producer to hire someone to do it and to establish certified livestock manager status. Many of these things depend upon the boundaries of the particular operation that we are considering.

Additional construction costs associated

with these regulations which may not exist otherwise include the cost of siting, installing and otherwise using monitoring wells for water quality, testing and certification, particularly for liners of lagoons and additional facility capacity. As an example of this, the additions proposed by Mr. Warrington of EPA fall under this category, for example, emergency spillways and engineering waste pipes so they do not pierce the lagoon berms.

After the construction costs there are operating costs which are required under the regulations. These include water testing, the maintenance of a waste management plan, maintenance of certified livestock manager status and manure nutrient testing as part of the livestock waste management plan.

The final type of compliance cost we wish to raise today is closure assurance. We have investigated and found that insurance companies are reluctant to provide any information at this time about the costs for obtaining insurance instruments to show financial capacity to pay for the closure of lagoons. And the cost to turn a lagoon site

back to its original state is a substantial source of uncertainty in the planning and execution of a new livestock waste management facility.

We have identified five scenarios to examine the economic costs associated with complying with proposed regulations, go through these briefly. The details for these is in Appendix two.

Scenario one is an existing operation with less than 300 animal units in place. The aquifer is at a shallow depth below the existing lagoon on this facility. Scenario two is again an existing operation with less than 300 animal units but as a normal course of business is expanding to greater than 300 but less than 1,000 animal units. The aquifer depth below the floor of the lagoon is deep, that is, it is below the 50-foot boundary.

Scenario three is exactly the same, an existing operation with less than 300 animal units looking to expand to greater than 300 but less than 1,000 animal units but the aquifer depth is in the shallow category, that is, less than 20 feet below the floor of lagoon site.

Scenario four is an existing operation

with greater than 300 animal units and wishes to expand to greater than 1,000 animal units and again in the most sensitive of sites with a shallow aquifer of material below the proposed lagoon site.

And the final scenario is a new operation of a scale greater than 1,000 animal units but less than 7,000 animal units sited in the medium sensitivity category where aquifer material is between 20 and 50 feet below the floor of the proposed lagoon.

This chart shows our analysis of the different titles in the proposed regulations where lagoon regulation -- sorry, lagoon registration, the requirement of having licensed, professional engineer certification for construction, the filing of a waste management plan and the need to have a certified livestock manager as part of the facility are required for different sized units which are measured down the left-hand column of the chart. And the second half, the right half of the chart shows the aquifer depth so we have the two types of boundaries which I alluded to earlier. And you can see on the right-hand side where the five scenarios

fall in these different size by aquifer categories and where they would require or have optional action by the operator on the proposed regulations.

We'll go into detail of this later as necessary. Right now I'd like to show you a summary of what the costs associated with these scenarios would be. Using costs obtained from commercial sources for meeting the requirements of each of the scenarios we identified a low and high estimate of the costs of compliance. For Scenario one, the existing farm with less than 300 units, the estimated cost of compliance ranged from 250 to $350. For Scenario two the estimated costs go from $1,650 to $3,820 in a range reflecting the requirements for siting and hiring licensed, professional engineers.

This differs from Scenario three which is the case where the aquifer depth is shallow and the operation seeks to go from being less than 300 animal units to greater than 300 animal unit. Scenario three's estimated costs range from $9,575 to $19,245 for compliance.

Scenario four is an existing operation

that begins at greater than 300 animal units and wishes to expand to greater than 1,000 animal units over a shallow aquifer material depth. This scenario has the highest cost of the five scenarios we proposed with a low estimate of $10,705 and a high estimate of $23,445.

And Scenario five which represents a new facility coming in with greater than 1,000 animal units, less than 7,000 animal units, and the medium level of environmental sensitivity shows estimated costs between $5,980 and $13,770. Thus we have proposed for five archetypal scenarios of existing and new operations according to the boundaries specified in the proposed regulations, these ranges of cost compliance.

Next I'd like to turn to the risk costs associated with this. Many of the costs of uncertainty in meeting the requirements of the proposed regulations are more difficult to measure but are very real. The increased investment risk associated with new regulations come from many factors, not the least of which is uncertainty of how the rules will be interpreted and enforced. Given the quantity of investments in place in swine

production, we need to consider the risks associated with having those -- that investment in place.

In the proposed rules and the discussions surrounding them, there is mention of such things as closure, cease and desist orders. Effectively this means for a livestock operation the depopulation and repopulation of the livestock in that operation. This is compounded by the fact that many such operations will be tied economically to other operations in the State.

For example, if we have multiple site hog production we will have some farms that are tied to others by receiving the baby pigs and finishing them out. If one of the operations is forced to close, what happens to the stream of animals which are supposed to be going normally from one site to another and what of contracts for marketing hogs at the end of production if the contract is in place and the livestock operation is forced to close. This would obviously be a great source of uncertainty for the operators and eventually for the bankers.

Some of the interpretation rules that need

to be discussed will be such things as how will water sample results be reconciled with the source of contamination. That is, if a monitoring well shows evidence of livestock waste, how will that be reconciled that the near lagoon is, in fact, the real source?

For questions regarding setbacks and odor problems, how will this be quantified? What happens if a waste management plan is faulty and what happens if the producer follows due diligence and lagoon conforms to regulations and yet a monitoring well indicates contamination? Currently livestock production facilities have low market value relative to their investment costs. This is nothing new. It's been going on in animal agriculture for 50 years. New rules could take the value of an existing operation and make it essentially worthless, if not a liability. This is obviously another source of concern for bankers lending in the agricultural field.

One of the risks associated with the proposed regulations and the discussions surrounding them is finding a suitable location. Given setbacks proposed, the number of suitable

locations for livestock facilities will decline. Simple supply and demand economics tells us that a reduction in the supply of land will lead to an increase in the cost of land for that production and in the cost of production for the product.

And what of the distance between facilities, particularly for multiple site production. As available sites are taken away, the distance between facilities will increase the cost to move animals between units and from the finishing units to the processor. Ellen Hankes alluded to a report done by David Lind and Cheryl DeViest which looked at the problems and costs associated with expanding livestock facilities. The No. 1 source of stress in the period 1990 to 1995 was the uncertain construction time and delays associated with putting a new facility in place.

Many producers are involved with coordinated production processes now. The additional testing and design costs associated with new rules and regulations will be another layer of uncertainty in the planning of new construction. Uncertainties with the results of tests and the certification of liners and the like and the

implication of that to the construction requirements are a source of uncertainty, a source of risk. And what of the uncertainties associated with the redesign or reconstruction of facilities as a result of inspection?

Finally there are those risk costs associated with being locked into a current operation. Setback requirements may provide some protection to existing operations but many of those operations will likely have to close eventually because they will either need to remodel or expand to remain viable. That is, the boundaries chosen for the size of farms represents the size of farms in the boundaries in 1997. In the future as economic forces require operating units to get larger or as family farms grow to bring in the next generation of producers, will those requirements under the new regulations prohibit or inhibit these activities? And we believe that family farms, however defined, will be the most impacted here.

This ends our presentation on Appendix one. I would suggest that we could leave any questions on Appendix two for the Board.

MS. LOZUK-LAWLESS: Are you saying that you

want to have questions now and then go through Appendix two, is that what you're saying?

MR. WESTGREN: Particularly in response to questions it might be easier to do it that way.

MS. LOZUK-LAWLESS: Certainly. Are there any questions from anyone in the audience? Any questions? Chairman Manning?

MS. MANNING: One of the goals of the Livestock Management Facilities Act was set forward by Chet Boruff this morning on the Department of Agriculture when he explained and summarized the proposal was that the legislature was trying to find and our rules are trying to find an economically feasible way of allowing the industry to grow with still being environmentally responsible, and noticeably I think absent from the figures, and maybe you can comment on this, maybe give me some figures, is what the cost of actual pollution is then, you know, especially I think when we're talking about lagoons and shallow aquifers. I mean, there's a cost of polluting the environment. There would be a cost to the producer of polluting the environment, and I think those figures have to be counterbalanced against the cost

of the figures of the risk of building and that sort of thing. And I was wondering if you had any comments on how those figures would counteract your figures.

MR. WESTGREN: One of the important questions in that is in fact the question of incidence. It's difficult to measure the total sum of compliance costs for the whole industry given the different size operations and the like and measure it against the value of protecting the environment without understanding or without having a number about the incidence of pollution that would exist absent the regulations. Since we did not have those numbers we did not include that in our analysis.

CHRISTOPHER SCHROEDER,

being previously duly sworn, testified as follows:

MR. SCHROEDER: If I could make a follow-up comment on that, I think what we found in looking at the numbers is that we wrote the numbers into the compliance and then the risk costs, that it appeared that the compliance costs were reasonable given, you know, the protection that they were going to provide, so I think, you know, the

response back is that yeah, it's a burdensome cost that's being put on the producer but it's an important thing that it's covering. And if it's adequately doing that, then it's not an unreasonable cost and that the companies will work around that, notwithstanding the comments that Randy made about the smaller operations that could be impacted more because they don't have the economy's scale to do that.

Where the economics really fell apart and got us scratching our heads trying to figure out, holy cow, what is the true economic impact, that was these risk costs because those are the kind of costs that could just explode in huge magnitude, and those were the costs that we saw as moving to the nonviable category in terms of being economically viable because if we don't get clear definition on those things and some of those things get out of hand, then we've got some real problems.

MR. FLEMAL: Do you or Mr. Harrington generally with your panel have some suggestions as to how these risk costs might be minimized? Are we going down that path here eventually?

MR. HARRINGTON: We have not prepared any separate testimony on risk costs in general. I think we would be commenting on certain specific concerns.

MR. FLEMAL: Which in some combination might go towards reducing the risk costs or reducing the risk and the cost associated with risk?

MR. HARRINGTON: That's our copilot. It's not presubmitted testimony on that. We are waiting to see how the -- all the testimony falls and clearly the Department's response to questions.

MR. FLEMAL: Thanks.

MR. RAO: I have a few questions for Dr. Westgren. First of all, your analysis, does it assume that, you know, right now there's no regulatory requirements that apply to these facilities?

MR. WESTGREN: The analysis looks only at the marginal costs associated with the implementation of the proposed regulations.

MR. RAO: So you know, there are already certain rules that apply to these facilities, so would it be more realistic to look at the incremental costs or do you think this is the

incremental cost that you are presenting in your report?

MR. WESTGREN: Thank you for asking for clarification. These are the incremental costs.

MR. RAO: Okay, yeah, I didn't find it in your testimony where you said there were incremental costs so I wanted to find out.

MR. FLEMAL: And the incremental costs of potential adoption of these proposed rules as opposed to the larger Livestock Facilities Management Act requirements.

MR. WESTGREN: That's correct. What we looked at was when a specific requirement is put in place, for example, of having certification by a licensed, professional engineer for these steps --

MR. FLEMAL: But if I might interrupt, that's a requirement that flows from the statute, not from the regulations before us. If we did or did not adopt these regulations, it would have no affect on the issue of these livestock managers, certified managers. Is that not correct?

MR. HARRINGTON: May I clarify? There's two requirements. There's requirement for the certified livestock manager which I believe is in

the Act.

MR. FLEMAL: Yes.

MR. HARRINGTON: I believe the requirement for the registered professional engineer to approve the plans under certain circumstances and supervise the work is not in the Act and that's an incremental cost of the regulations.

MR. FLEMAL: When we're talking about the certification, we're talking about the certification of the engineer or the geologist as opposed to the certification of the livestock operator himself.

MR. WESTGREN: That is correct. That's the way it was used in the --

MR. RAO: I have one more clarification question. The way in which you came about with the boundaries for your analysis, the first one is you had it cut out for 300 animal units. Can you explain how you came up with a boundary, you know, with relation to the proposed rule.

MR. WESTGREN: We took it from the text of the proposed rules.

MR. RAO: Because I was trying to find the proposal where it talks about this 300-animal unit

and I cannot find it, so I was curious, you know, what were the bases of that. I guess I'd like to know, you know, emergency rules we had the 300-animal unit cut off.

MS. MANNING: I think that's the confusion. On our emergency rules we had a 300-animal unit cutoff for design standards. My understanding is that is not part of the Department's proposal. There is not a 300-animal unit cutoff for design standards. Is that correct?

MR. BORUFF: That is correct.

MR. WESTGREN: If I may, is it not true that the proposed rules still use 300-animal units for questions of livestock -- certification of livestock waste handling?

MS. MANNING: That is correct. That is correct.

MR. WESTGREN: That is the reason we use those boundaries, not because they have to deal with depth aquifer. We did make the point that those physical boundaries were independent of scale but we used the 300 and the 1,000 units because they affected other parts of compliance with the Act and the proposed regulations. For example, the

Livestock Waste Management Plan is tied to a boundary of 1,000 animal units.

MS. MANNING: Right, and those are statutory. My understanding is those particular cutoffs mirror specifically the statutory requirements of the Livestock Management Facilities Act.

MR. RAO: But those facilities still have to comply with the lagoon design standards and other requirements; right?

MR. WESTGREN: That is correct.

MR. RAO: And that's accounted for in your analysis?

MR. WESTGREN: Yes, it is.

MR. RAO: I had a question about the estimated costs in Appendix two on Page 3. You listed the costs for testing which includes boring and evaluation --

MR. WESTGREN: Yes.

MR. RAO: -- as 1100 at the low end and $3,000 at the high end. Is this the -- does it include the actual cost of boring itself or is it just the consulting fee from the licensed, professional engineer?

MR. SCHROEDER: It is the borings and the

analysis, and the assumption there was it was -- we get wide ranges on the costs because you go to the engineer and ask them about borings, they say, we need to see the site. We want to know how deep we're going. And I said, help me out, let's get some ranges. So that was both the boring as well as the analysis of those. Actually there was -- that assumed we had higher estimates but they were only in very deep areas that we kind of threw those outliers out but that does assume both the boring and the analysis.

MR. RAO: Because the Board was presented with cost information at our rulemakings where the estimates were much higher than what you have presented here.

MR. SCHROEDER: And we've heard higher estimates but they were for pretty extreme depths in our conversations that we had with the various engineers.

MR. RAO: And did your analysis take into account the cost of constructing a liner?

MR. SCHROEDER: No. Getting back to the idea of the incremental analysis, if somebody's going to go out and put in a lagoon, the producers that we

talked to who had been putting lagoons in, I mean, they were pretty much going by the rules in terms of putting proper liners in. Here we're looking at if you go from a -- the point where I say I'm going to put a lagoon in and I'm going to line the property according to the various publications which have been referenced earlier, what's the cost of me just doing that versus me having to go through and have it certified and the borings and those types of things, so it was purely incremental because, I mean, you'd have 100,000 or $150,000 base construction costs to start with and then this is on top of that.

MR. RAO: Okay, thanks.

MR. FLEMAL: As regard your scenarios, one through five, which of those would involve the addition of a lagoon where one crosses the boundary in terms of the analysis you've produced?

MR. SCHROEDER: Well, the assumption is that they all have lagoons.

MR. FLEMAL: They have existing lagoons and they --

MR. SCHROEDER: Let's start with No. 1, for example. I mean, they're less than 300-animal

units and they have a lagoon. They have one on. On the ones where they're expanding, they either -- they could be building a new lagoon as a part of the expansion or they could already have one on and be adding one, so it's -- in all cases we're talking about operations who are adding lagoons on.

MR. FLEMAL: The assumption in each case is that the storage is via lagoon and the lagoon has to change either in terms of expansion or a whole new lagoon and the costs flow from that change in lagoon status.

MR. SCHROEDER: Right.

MR. WESTGREN: Save Scenario one. That's sort of the baseline small case.

MR. FLEMAL: Would you anticipate that operations which are experiencing these changes would in fact require modifications in their lagoons or in fact would have those lagoons to begin with in all cases?

MR. WESTGREN: It's difficult to say. We have talked with people who have proposed that under the requirements of the new rules and regulations for the engineering of the lagoons. The price of the

lagoons is being driven up to a point where deep pits are now economically substitutable in many cases and there has been some speculation that the regulations may actually drive farms from choosing the lagoons to pits. We do not include it in here. We thought that we would go with the lagoons because the proposed regulations were very specific about them and we were interested in the costs associated with as they relate out.

MS. MANNING: I had a question about your -- I was interested in your levels of investment, your risk costs on your 150 sow. For a traditional farrow to finish operation you have listed $490,919 and for approximately another 15,000 it becomes state of the art, and I was wondering if you could explain to me for a basic understanding on the record, what do you buy with that 15,000 that turns you from a traditional farrow to finish operation to a state-of-the-art farrow to finish operation in terms of your statistics?

MR. WESTGREN: Yes, that is -- those numbers were based on going from a traditional type of herd to one which would have advanced genetics and would be using at the level it was capable of, some of

the production techniques available such as split-six feeding which allows the animals to be separated, male and female, and have diets specific for the two. That's relatively limited to that size of operation so I would say that the main advantage there or the main addition to it would be in having confinement operation higher quality genetics.

MS. LOZUK-LAWLESS: Any further questions regarding Appendix one at least?

MR. RAO: I have one more clarification. Going back to Appendix two to your estimated costs, for the cost of monitoring wells, does that represent the costs for three monitoring wells required by the rules?

MR. WESTGREN: Yes, yes, it is based on the three monitoring wells required. Thank you.

MS. LOZUK-LAWLESS: Okay, gentlemen, if you'd like to continue.

MR. FEINEN: I have one more. In this risk cost or risk to investment cost that you have here, you stated that that's based on the regulations as they're proposed. Is there a way to show the risks to investment or risk costs based off just what the

statute would require versus what the regulations?

MR. WESTGREN: If I understand correctly, you're asking if as the regulation exists can one infer from that the costs of the risks associated with --

MR. FEINEN: I guess what I'm asking is like you mentioned the licensed, professional engineer certification might be something that's new in the regulations that's not in the statutes. What I'd like to know is what are the pure statutory risk costs without looking at the regulations? If you went through the statute, looked at all the requirements, is there a way to develop the risk costs solely associated with that then there to be a comparison between what the extra regulatory requirements would add versus what the statute has already added?

MR. WESTGREN: There could be. We've not done that because we believe that on one hand if you began just with the regulatory side there are many things which are less certain than they are under the proposed regulations and therefore some of the uncertainties that are engendered in the regular -- in the bill are clarified and officiated in the

regulations. Vice versa, as the rules are written to conform to the legislation, you may increase the uncertainties associated with investment decisions, and so we did not do that and we did not have enough data on this to make a competent analysis for you at this time.

MR. FEINEN: But you do recognize the fact that the statute has some risk costs built in and what you're saying is that the regulations may add or subtract from that risk cost depending on how they're drafted.

MR. WESTGREN: Indeed. That's our analysis.

MS. FEINEN: Thank you.

MS. LOZUK-LAWLESS: Okay, gentlemen, if you'd like to go on with Appendix two.

MR. WESTGREN: In the documents that you have labeled Appendix two, The Economic Impact of Livestock Management Facilities Act Rules on Different Types of Production Operations, we again list the assumptions by which we identified the costs. We talked about the compliance costs being associated with registration of existing lagoons, registration of new lagoons, certification of plans and actual construction by a licensed, professional

engineer, preparation and submission of waste management plans to DOA, establishment and maintenance with certified livestock manager status.

In addition, compliance will require that the owner-operator make additional capital investment and ongoing operating costs in order to comply with the plan established. The extent of these costs would depend upon the overall size of the operation and/or expansion and the depth of aquifer production site. We repeat the visual that we had up under Appendix one which was our mental map, if you will, of how the various categories of requirements ranging from lagoon registration through the certified livestock manager status and the requirements for construction according to the physical boundaries of the aquifer depth are related and we highlighted the five scenarios on that.

The next page shows a summary of the scenario descriptions. Again, that was given to you in the slide presentation of Appendix one, and the cost estimate summary below which you have not yet seen is consonant with the summary table which

we put up in Appendix one where the scenarios are split into their first year costs, which would include both first year operating as well as the capital costs associated with the different scenarios, and subsequent year costs for those where there are ongoing cost requirements such as the quarterly testing of the monitoring wells and so on.

The third page of Appendix two shows notations that we didn't use in the estimated costs of compliance. Again, if we had the case where there was an existing operation that was expanding, we presumed there was an existing lagoon and that the expansions required the implementation of another one, a new one.

You will see in our cost analysis that we did put economic value on owner-operator time for the registration of new lagoons for submitting and preparation of waste management plans and for the establishment of certified livestock manager status. We thought it was important to recognize, as was pointed out in earlier testimony this morning, that these activities are in addition to the ongoing business activities in these farming

operations and reflect the fact that the operator time is not a free good. And I'd be glad to respond, as would Mr. Schroeder, to any questions about the construction of these.

MS. LOZUK-LAWLESS: Are there any questions?

MR. FLEMAL: The owner-operator time that's associated with submitting the waste management plan shows a low of 1,000 and a high of 400 in the chart, I believe. Is that intended to be that way?

MR. WESTGREN: Yes, sir. It includes fees for consultants. We felt that the lowest priced alternative was the operator did it his self or herself and would cost $1,000 in their own time but if they hired a consultant at $3,600 they would still be required to put $400 worth of time of their own in. These numbers were based on discussions we had with people who prepare these and pricing it against a door prize that was offered at a producer's association for a turnkey livestock waste management plan.

MS. LOZUK-LAWLESS: Are there any questions from anyone in the audience of this gentleman?

MS. MANNING: I have another question on

Appendix one if I might go back to Appendix one. Your section on compliance costs on Page 4, the closure assurance costs particularly, you make the statement that insurance companies are reluctant to provide any information there. I'd like you to expand on that if you could. Why is it that you think that's true?

MR. WESTGREN: They are -- they live in a world of uncertainty and pricing the products that they give in their analysis of what uncertainties exist. This is such a new area that the insurance companies that we asked were unprepared to make a quote. My suspicion is that they will not be able to make a quote until all of the rules are in place and then only if there is a market for that risk management tool given the price that they must charge to do it, and at this point in the development of the rules none of the organizations with which we spoke were capable or willing to tender a quote in this environment.

MS. MANNING: You make a second conclusion in that same area and that is the cost could turn a lagoon site back to its original state is also an area of uncertainty. Why is that?

MR. WESTGREN: Again, this was the result of talking with people and trying to find out what does it cost to undo a lagoon, and it was very difficult to get even a range that was recordable. One suggestion was that it cost just as much to take it out of production as it did to put it in, so you've essentially doubled the cost of the lagoon if you have to show financial responsibility for taking that out of production at a later date. We could not find costs that we felt were sufficiently tangible to do better than what we heard from talking to people. The other question was to what state does the lagoon which is taken out of production have to be restored. No one knew.

MS. LOZUK-LAWLESS: Are there any further questions of Mr. Westgren or Mr. Schroeder?

MR. HARRINGTON: I have a couple of I think clarification questions.

MS. LOZUK-LAWLESS: Mr. Harrington.

MR. HARRINGTON: In your testimony you used the word lagoon. Could you explain what you mean by lagoon as you used it in your testimony.

MR. SCHROEDER: Sure. I believe consistent

with what's been discussed in the rules we're talking about -- maybe it's easier to talk about what we're not talking about. We're not talking about pits under buildings. We're not talking about the holding ponds but facilities that are put in place for the long-term storage and continual storage of livestock waste over time.

MR. HARRINGTON: Where some process of anaerobic digestion occurs?

MR. SCHROEDER: Yes.

MR. HARRINGTON: And if you had included these other units within as broad a definition of lagoons, would that have driven the cost up substantially?

MR. SCHROEDER: If you would -- yeah, if you'd redefine lagoons to include pits and all other kinds of holding ponds and anything like that, then yes, the cost would have increased substantially by the number of those types of facilities that are all over. I mean, because now we go from having to bore below a lagoon site to having to bore below every pit or every facility out there, so yeah, it would substantially increase that.

MR. HARRINGTON: Did you make any estimate of

the economic impact of the setback requirements of the rules? In essence, the loss of use of certain property for animal feeding operations.

MR. SCHROEDER: No, we did not.

MR. HARRINGTON: Thank you.

MS. LOZUK-LAWLESS: Thank you, Mr. Harrington. Therefore at this point I think it would be a good time to break for lunch and when we return we will finish with the testimony of the two remaining persons who have prefiled testimony, John Sheaffer and Ed Laurent and then we will go on to any questions that anyone has of any of the Agencies as well as the prefiled questions directed to the Department of Agriculture, so let's break for an hour, so come back at 20 minutes after.

(A recess was taken at 12:18 p.m. and proceedings resumed at 1:32 p.m.)

MS. LOZUK-LAWLESS: If we could go back on the record. We will now proceed with the testimony of Ed Laurent followed by John Sheaffer. Would you please swear in the witnesses.

(WHEREUPON all those were duly sworn.)

ED LAURENT,

being first duly sworn, testified as

follows:

MS. LOZUK-LAWLESS: Mr. Laurent, you can begin.

MR. LAURENT: Thank you. First of all I'd like to thank the Illinois Pollution Control Board for allowing me to be here today and I also would like to thank the various State regulatory Agencies or the affiliated State Agencies that are here and also I'd like to thank those of you who are present here for my testimony, for being here.

I'd like to stick right to the topic of odor control since it sounds like weather's a factor for us being present here for a long duration. Back in 1995 a gentleman named Tom Munson (phonetic) who was an employee for Jetpro (phonetic) out of Ashland, Kansas -- Jetpro's a manufacturer of evaporative driers and they work extensively throughout the world in treating and drying grain wastes, animal process waste, food waste, basically anything to do that requires drying. If they haven't done it, they have knowledge of it.

Well, during 1995 as most of you know, North Carolina experienced some spills from

lagoons, and when you work in the wastewater industry which I do every day for a living, problem solving issues regarding waste and water, you tend to get immune to circumstances that others give priority to. And based upon a request of Mr. Munson I took it upon myself to investigate ways of dealing with this problem from what I felt were practical viewpoints.

To give just a slight background about myself, I'm from a rural community in Illinois which I'm proud to say, a town called St. Anne, Illinois, about 55 miles due south of Chicago. And having been from that rural environment, even though I was raised in general contracting and construction, in that arena, all my relatives were farmers. And it gave me the opportunity from the time of my youth to the present time to be involved in farm operation decisions. So in that regard those of you present in the audience who are confronted with the issues of this management livestock facility situation as you may have it presented to you, I'd like to think what I'm about to tell you is going to offer you a benefit and not a detriment by using the technology that's been

developed.

Upon Mr. Munson talking to me I spent three weeks in my laboratory. I own an environmental chemical company and we specialize in the manufacture of synthetic and natural chemistries which we own many patents on and we do direct hands-on application throughout the world. In doing so, I was able to come across with two chemistries, one of which is presented here, to do what I call phase separation. In the environmental world of acronyms that are used specifically for the industry, many people would call that flocculation, but basically it comes down to a separation of the solids from the liquid phase in a particular waste.

Primarily when we work with most types of industries we do so for one particular reason and that's to help them meet their discharge permit that's established by the State and the federal government in which -- and they vary. It varies according to industry. Each town gives a specific industries specific discharge permit. Well, taking this into consideration and taking what I feel is a very, very important economic issue to agriculture

and to our country as a whole, I felt that I had a personal obligation to seek an answer to this problem.

Is there a selfish interest? Well, I think we all have a selfish interest because we're all here speaking about not only issues but we're talking about money, and money is an issue that is either when you're showing someone profit, they're you're best -- I'm your best friend. If I show you an expense, I soon become not so much of a friend. What I'm going to present to you I think will offer a way according to the Management Facilities Livestock Act that's being presented to hopefully allow megapork productions or small operations to work in harmony with those who are doing the regulations. My goal is to help agriculture, especially pork and cattle processors and those who are doing the actual raising of those animals to stay in existence, and I think it can be done.

The reason I say that is that in a report that I did submit previously to the Illinois Pollution Control Board and a videotape which I have available and it was submitted to the Illinois Pollution Control Board, the same tape was

submitted to the Illinois Pork Producers, Illinois Department of Agriculture, I don't believe I gave one to the Illinois Department of Public Health so there's some Agencies that I did not get a tape out to. And let's see, Illinois EPA also has a copy of this tape and also the documentation which I presented, and copies are available to anyone who would want one.

Within my report basically what I have done is I've been able to flocculate hog waste. This is a very difficult thing to do but outside of gravity separation I have accomplished it. Can anyone do it? Well, maybe, but I don't know of anyone else who has and I do have a provisional patent filed with the federal government on this. And you say, well, gosh, that's great, what have you accomplished. Well, let me get to the point.

Using science when you look at discharge, which I'm sure many people present here today are aware of, by having to meet certain criteria, an NPDES permit, which correct me if I'm wrong stands for National Pollution Discharge Elimination System requirement for safety of protecting the environment. Well, we based our tests, all our

testing on this and we use independent labs because of the very type of testimony I'm giving here today. We do this in other states and for other reasons but basically we tried to address the issues of what we thought were important to control to hopefully provide a higher degree of technology that is hopefully usable in the industry.

So we tried to address what causes odor. What are the substances in hog waste that cause odor? I haven't heard anyone here speak about it today. If you're going to deal with a substance, you have to know its composition. So we look at the composition as we do always when we are addressed to look at finding an answer.

Now, we don't need to know the exact diets of each pig. We realize that there are many feed formulators out there and the diets will vary, but how do we develop a product that will allow for waste to be treated for the phase separations? Our feeling on this is that if we could control the formation of gases which are generated when hog waste decays or any waste decays, you stop the formation of gases, you help eliminate odor. That was our main objective in our testing.

So upon doing a dewatering belt press test, which is a mechanical operation, those of you who aren't familiar with a dewatering belt press, if your grandmother had a ringer washer, think of a long sheet going into it and being squeezed and the water squeezed out of it after we conduct flocculation which is a phrase separation. The water's breaking through a porous belt as it's being squeezed. You have a water phase and then you have a solid phase, so our objective quite simply is one we felt was quite practical, phase separate the waste. When you phase separate the waste, you end up with a reduced solid in the liquid phase that can either be discharged to a lagoon or it can be discharged for what we're used to, to a stream. Those stream requirements of course are governed by each state and the federal government, similar to other industries.

So taking that in mind, we tried -- without really optimizing, we did our initial test at a hog farm in Hamilton, Michigan and the belt press -- we used a belt press that's manufactured by a firm -- I'm not trying to do a sales pitch but I'll mention a few names, Frontier Technologies

makes a dewatering belt press. They're in Allegan, Michigan, 20 miles away. They were willing to participate in this study.

Well, taking the flocculent that I had developed we basically phase separated the waste and ran the press for about 15 minutes before our unit froze up. We did it in this type of weather. And basically the filtrate was then taken to a certified lab, Carlabs (phonetic) in Kalamazoo, Michigan. That report's on record with them. Anyone that wants an independent copy can get it. And we showed significant reductions.

The things we were looking for, ammonia nitrates, nitrites, total nitrogen reductions, sulfate, sulfide, total suspended solids. We were able to achieve a total suspended solids recovery from the filtrate phase of 98.3 percent. It's almost impossible to get a hundred percent when you're doing this with even municipal or even the highest tech grade industrial wastewater treatment. So we were very proud of this but we didn't try to optimize. This was based off a 20 minute run that we did one time and we haven't done anymore work since.

Total sulfites, sulfite of H2S we reduced to 81.8 percent. We feel the main causes of odor are a silent gas that's deadly, H2S, ammonia and your sulfur compounds. When they interact if they're left to decompose in a lagoon, what do you get? You get increase of -- naturally you're going to get increase in gases from the decay that are going to bubble up to the surface and if they're stirred, the more you stir them, the more they smell.

Are they obnoxious? Well, everyone seems to think they are. I know some people actually like the smell but to each their own, but what we're saying is, okay, if it's being viewed as an obnoxious odor, what have we done? Well, basically we've knocked enough solids out of there that we feel No. 1, you have reduced solids that are going to fill your lagoon. No. 2, I think it creates a lot of options for you.

Do you have to get rid of your lagoons? Not necessarily. My thinking on it was hold them for your flush water, recycle that water, closed loop system, that's an option. Field irrigate with less solids in it, that's another option. Hold

your lagoons, let the solids settle out, check it, discharge it to a stream if you have the parameters met that are going to be required of it, another option.

Now, what we're saying is other than looking at setbacks of a quarter mile, half a mile, one mile, we're addressing what we feel is the most important issue and that's removal of the solids that generate the gases that cause the odor. We feel it's very straightforward. It's not a simple thing to accomplish but I think the chemistry that we've developed will allow it to. From what we've seen, we've tested fresh pig waste some of which I obtained from DeKalb Genetics right here in DeKalb for our experiment. Any other material we've obtained either from other farms in Illinois that is aged.

The major difference, the major requirement that we see is the dosage of the products that's required to do the phase separation is basically the same. The only difference we've seen is the formation of the gases which creates the odor. I'm not saying we're going to eliminate the odor. To eliminate -- to say you're going to

completely eliminate the odor I don't think is a true statement. What our objective was to find a way to basically allow a golf course to exist next to a megapork operation and I think we can do it.

While all of you have sat in this room with me today I've had a bag of waste in my briefcase and I didn't hear any complaints.

MS. LOZUK-LAWLESS: Let the record reflect Mr. Laurent is holding a bag full of -- you can say it.

MR. LAURENT: This is actually dewatered pig waste which is 30 days old. This sample was made on 11/20/95 so it's over a year old.

MS. LOZUK-LAWLESS: In a Gladlock Bag.

MS. MANNING: Zipped Gladlock Bag.

MR. LAURENT: Well, I don't want to be unkind. I mean, but it does have a little odor to it but it's not unreasonable odor. Now, you say let's go on to the solid phase because this is the phase I really would like to talk to you about and I think it's a phase that will give small or large producers an opportunity to make one thing. Besides meeting the discharge I want to talk to you -- I'm a capitalist, I can't refuse it. I want

to talk to you about the money of this stuff.

Just solid hog waste is gold, folks. I don't know if you've investigated but there's a lot of data. Dr. Don Day who I've had intimate discussions with, I don't know how many of you know him, 20 years ago at the University of Illinois, he's done extensive work on this. Purdue University, Michigan State, NC State, I mean, these universities have done a lot of work. There's a lot of private industries who have done their own homework on this. And what really is exciting, not to get off, deviate from the subject, but there's a shortage of animal feed in the world. We get involved in this in our company on a daily basis.

I'm seeing material that was being discarded as waste now pulling in 20 to 25 cents a pound. That really isn't much. It's from another industry but it's not much different than what we're talking about, the protein value and other values that are available. So we look at by-product use as supplemental feed, fertilizer, fuel. Well, granted we talked about -- I heard some gentlemen who are farmers here talk about the injection. That's not an uncommon practice. Most

everybody knows about knife injection. But you got to be practical about it as well. You're not going to knife inject very efficiently in this type of weather on a farm when the ground's frozen. Most of the people who are regulatory, they don't want to hear about surface runoff into a stream.

You're kind of defeating your purpose. So what are you going to do? Are you going to stop production for six months in your northern climate? No, you don't want to do that. I'm sure you don't. What we offer is by going through a dryer after develop press. By using drying technology, which is readily available, there are numerous forms which I'd be glad to discuss separately with you if you're interested in this concept, but you can dry this and you can store it. Many states won't even give you a permit unless you have -- you can present to them how you're going to deal with your solids. You can't leave it in liquid form. You got to get it 90 percent dry without degradation to occur to prevent odors.

Now, what I've done in my product, I have a masking agent in here and I think this may be the

key to specifically hog. I know some beef people are here too and I don't see the beef problem as much of a problem due to the complexity of hog waste. But specifically talking about hog, masking agents can be put into certain types of chemistries, which this is. This is a demotion polymer. I've tested 1500 different combinations that I formulated. Two work to flocculate, phase separate solids from liquids, and it's readily available. I sell it to other industries.

Is it expensive? Well, any time you got to buy something, yes, it's expensive. Is it affordable? Well, the only way I feel it's going to be affordable is if the industry is going to look at the by-product value of what you have. I would say on a dry ton basis, and don't hold me to it because I don't have any numbers sharpened, but I think this can be done between the flocculation phase and equipment phase, and I think you're looking at 100, $150 a ton. And I think it's a wide gap, but I'm going to leave it at that.

What can you get for it though? I know of a facility in Alabama who's paying 600 to $650 a ton for dried waste and I know some third-world

markets that are developing who are looking for fertilizers to enhance their soils. I think there's an excellent export opportunity. If not only domestic use, export potential for this valuable material, and I'd be glad to talk to you about it and if you're interested, assist you with it.

MS. LOZUK-LAWLESS: Thank you, Mr. Laurent.

MR. LAURENT: In saying that, the other benefits, if I may to -- just to go on on the liquid phase, you know, you look at the expense of monitoring wells. I'm not saying that you have to replace what has been stated, your lagoons. Can you replace them or close them down completely? Possibly. I think the idea of a -- of what you've done is commendable. I like the idea of using you're lagoons as a storage facility for your slat washing to make your system as closed loop as possible with continual regeneration and recovery of your solids. Should you have monitoring wells? Well, even I have to do quality control and I like the thought of having our environment protected. Murphy's Law is out there, things can happen. We're all concerned about our aquifers and our

water systems. No one likes to have to spend the money to do it, but sometimes you have to.

I would be glad to speak to anyone who's interested in this. I think what I've presented offers a way to look at lagoon use and the risk reduction of what you're confronted with in a different light, and I hope that it will be taken seriously and reviewed as such by the Illinois Pollution Control Board. Thank you.

MS. LOZUK-LAWLESS: Thank you. Do you have another copy of your prefiled testimony, a clean copy? And then I can enter that as an exhibit.

MR. LAURENT: Yes, yes.

MS. LOZUK-LAWLESS: Because I know you deviated from your prefiled testimony just so that we have everything back.

MR. LAURENT: Well, just to talk on that, I do mention that there's -- for the removal of the ammonia, you can aerate it, and to treat H2S, you can treat that. Is it feasibly necessary? That's an option. That's an option that each organization will have to make.

MS. LOZUK-LAWLESS: Okay, thank you.

MR. LAURENT: Did you -- I didn't present a

copy of this tape. It shows drying technology.

MS. LOZUK-LAWLESS: You submitted it to the Board already.

MR. LAURENT: That was this one. That was mine. This one shows actual evaporative drying.

MS. LOZUK-LAWLESS: Would you like to submit it as an exhibit?

MR. LAURENT: Well, I think it would be important for you to look at.

MS. LOZUK-LAWLESS: That's fine. Let the record reflect that Mr. Laurent's testimony from Water and Oil Technologies will be marked as Exhibit No. 22 and the videotape he has submitted which is entitled Jetpro -- Jetpro Company, Incorporated will be marked as Exhibit No. 23 into the record. Are there any questions from the audience of Mr. Laurent? Mr. Harrington?

MR. HARRINGTON: I was a little confused about your testimony on the costs of this technology. Do you have any idea what the capital costs would be for a facility, say, 1200 sow?

MR. LAURENT: I can't answer that and I'm going to tell you why I can't answer it. There are various types of dryer technologies out there.

Obviously I can't deviate from one or two chemistries that work. The costs will vary and I would like to work with you on this really in more detail which I have some basic costs I came up with over a year ago. I have not touched this issue and in fact I was a little reluctant to even give testimony here today and I'm going to tell you why is that I don't like getting caught in a cross fire of attitudes that aren't complimentary. It's a touchy issue. I'm not here to act like I'm Jesus Christ hanging on the cross.

My objective is to become the best friend to agriculture. It's an optional way that I think is viable to help substance, to help environmental regulations be met and production to be increased. That's our objective. I would say that taking into the discussions I had -- to try to answer your question, the $135 a ton is taking into account my chemical costs, the Jetpro dryer costs. There are many other dryers out. There's a lot of other ways to do it. It depends whether you're in a climate like we're in or if you're in Mexico. If you're in Mexico you don't need a dryer at all. You can use the evaporative dryer beds, very cheap to use. So

it depends on what part of the country you're in.

MR. HARRINGTON: Well, in Illinois obviously.

MR. LAURENT: In Illinois? Your costs in Southern Illinois would be cheaper than Northern Illinois. If you're in DeKalb it's going to be cheaper than Carbondale just because of the environmental climate you're in but you have other topography situations you deal with in Carbondale than what you have up here.

MR. HARRINGTON: But does your cost include -- you're going to need a settling basin, a reactive basin where the waste is going to react with your polymer and settle out.

MR. LAURENT: What I would foresee then is what -- all you need's a tool shed to store it in. Once you put it over a belt press, you can have a truck backed up to that belt press.

MR. HARRINGTON: Excuse me, maybe I misstated. The first step in the process, if you have a liquid flow coming out of a hog barn --

MR. LAURENT: It's flocculated.

MR. HARRINGTON: You need a chamber in which to flocculate it.

MR. LAURENT: No, you can do it continuous.

You can have a pit. In your pit you can have a pump sucking that up and put an in-line static mixer and this chemical can be added by a line in a pump, a little LMI pump about this big, and you set the dose for that chemical to be added to your flow rate, okay? Whether it's -- let's say you have 50,000 gallons a day or two million gallons a day and how much time do you want to treat it? It's going to set the stage for your pumps and how much chemical you use accordingly. So it can be a small volume you can batch treat or you can continuous treat around the clock.

MR. HARRINGTON: Does it go from the addition of the polymer directly to the --

MR. LAURENT: Belt press or centrifuge? A mechanical separator?

MR. HARRINGTON: Mechanical separator.

MR. LAURENT: Yes, sir.

MR. HARRINGTON: From there it goes to the belt?

MR. LAURENT: Your solids. Your solids are on the belt. The material is flocculated. It's going to a phrase separation. I think if I could show you that tape it would be great because it shows

it, demonstrates it. It shows it coming down a free drain area onto the squeeze mechanism of the belts and there's a doctor blade. There's a sharp blade that skims the solids right off and it can go into a truck. Am I making myself clear or not? It's a mechanism that does the separation off a belt so you can take these solids and you can run a moisture analysis with a little oven.

MR. HARRINGTON: Let's take the solids for a minute, and the question is what is the value of those solids for fertilizer? Do you have any analysis on them?

MR. LAURENT: There aren't a lot of -- there's a lot of value to it. If you look at my report, if you start off with the control versus that which we recovered, you'll see there's lot of phosphorus and nitrogen that's maintained in that material in the total suspended solids that we're catching. Out of that hundred percent that we started off with, we're capturing 98.3 percent in this particular test as solids that are going to be available as by-product.

Now, if you want to use it for fertilizer or if you want to look at the nutrients such as the

proteins, fatty acids, carbohydrates, minerals and vitamins present, you can remove those out of there as well or you can phrase separate that. It's to what degree you want to take that material and use it. It can be done. The technology's there to do this.

MR. HARRINGTON: What is the value, fertilizer value of this material compared to the material produced by the waste lagoon, anaerobic waste lagoon?

MR. LAURENT: Well, I'd have to say because you're going through decomposition in a 30 day or older lagoon, No. 1, you're going through a stage of decomposition of the organic matter so when you go through -- so that means -- decay means it has less value even if you recover it as a liquid, okay? Plus you have the odors in the environment. When you stir it up to apply it, you're generating your odors. If you are to take the liquid out of a lagoon after we phase separate and compare it to nontreated waste, you're going to notice a significance. Even without adding a masking agent you're going to notice a significant difference in the odor control.

And I'd like to share with you just one study. The last study I did was in February of last year down in Central Illinois. I did a phase separation, okay, for a sow operation and I wanted to pass an odor test so I asked the people who were there with me working, both male and female, to dip their hands in the filtrate, which they did, and then I drove them to the most expensive restaurant in the area I could find, okay? We went to that restaurant, sat down, and with the presence of nice waiters and waitresses, they came up and started to wait on us. And I then asked them, do you smell anything obnoxious? Is there something in here that smells like an upset toilet, backed up toilet, whatever? And they said no. It passed the test.

Like I say, I'm not saying I'm going to eliminate a hundred percent of the odor, but when you can go into a classy restaurant and not have someone kick you out after working on hogs, I think that's quite an accomplishment.

MS. LOZUK-LAWLESS: Anything else, Mr. Harrington?

MR. HARRINGTON: No.

MS. LOZUK-LAWLESS: Are there any further

questions for Mr. Laurent? Any questions from the Board?

MS. MANNING: Do either of the Agencies have questions?

MS. LOZUK-LAWLESS: Thank you, Mr. Laurent, very much. Next turn to the last person to speak and file testimony --

MR. LAURENT: Do you want these as evidence?

MS. LOZUK-LAWLESS: I don't think it's necessary. Does anyone --

MS. MANNING: You'll have to keep them in your office.

MR. LAURENT: This one smells like cherry. It's cherry flavored. If any of you would like to look at it before I leave, I'd be glad to show it to you. No takers, all right.

MS. LOZUK-LAWLESS: Then we'll proceed with Dr. Sheaffer. Oh, I'm sorry.

MR. LAURENT: Do you want this sample?

MS. LOZUK-LAWLESS: I don't think we need that either. Does anyone from the Board want that dried manure? Okay. Thank you, though, anyway. Dr. Sheaffer?

JOHN SHEAFFER,

being previously duly sworn, testified as follows:

MR. SHEAFFER: Well, good afternoon and thank you for the opportunity to meet with you, and what I would like to suggest is a different approach to dealing with hog waste, and this is an extension of work we've done in Illinois in taking municipal waste. And a good comparison in municipal waste, we're going to have maybe 200 milligrams per liter of BOD, material that's going to decompose and deplete our water oxygen, and where in a hog operation we may have 1500, 1600 milligrams per liter of BOD. So you might say there really isn't much of a comparison, but what I want to introduce is a technology which adds time, plus air and achieves a stabilized odor-free waste facility.

Now, those of you who live in Chicago area probably have gone by Hamilton Lakes, the big 4 million square foot office space on 274 acres, but it's probably never dawned on you that every gallon of waste ever produced in those buildings and in the hotels was processed and recycled on their lawn. There's no discharge. It's in its 17th year. There's no sludge. The Mayor of Itasca has

been there in that 17 years, said there's never been an odor. But that's a municipal waste. At times it gets up to 400 BOD but never anything approaching what hog waste strength is.

Well, about two years ago a person came to me from Iowa at an egg breaking plant. Now, an egg breaking plant has a BOD of 4,000, so it's a much stronger waste than what you'd find in a municipal waste stream. And they said could we apply or asked, could we apply this long treatment heavy aerated process to our egg breaking plant. Well, we did a lot of work, a lot of thinking, and we concluded that in fact we could and we did so. And if you went to it, if you went to the town, they were trying to shutdown the operation. Year, almost two years ago, they had a picnic on the shores of the waste processing facility.

Well, then the question was, hey, if you did it with an egg breaking plant could you do it with a pig operation and we're in the process of doing that right now. It has not been done but the engineering has been done and the economics have been done, and obviously we're thinking we've got a controlled situation and to a degree we control

it. But the odor from a pig operation has got to be generated in three areas. One is a production area. A second one is, and I'm assuming a lagoon, and all the pig operations I've seen have an anaerobic lagoon. And then thirdly they have a place to apply the somewhat stabilized waste which generates odors also, the application area.

So we wanted to work with those three sources of odor and combine it into a system that would handle the waste, not as something to get rid of but as a raw material or resource from which we could get some value. In other words, we looked at waste as a resource, as a raw material. Now, as I listened to the testimony today I thought I could wrap it up with three approaches. One was isolation, how big a distance between what smells and where we'll allow people to be. A second one was engineering standards. If we built a lagoon, it won't fail. We talked about spillways, et cetera, but engineering standards to make sure that a containment facility does, in fact, contain. And a third thing I heard about was common sense, and whenever I hear that, I think one of the best definitions of common sense is it isn't common,

No. 1, and No. 2, it generally falls secondary to economic sense. So I can be common some of the time but not all the time.

So here's the approach we've taken and I want to just outline it very quickly and then let you know that we did a detailed economic evaluation of it because we're going to have to put the facility in. We need to know what it's going to cost, how much energy it's going to take to operate and what kind of benefits can we get. So let's start with a production area and I like to liken a production area to a water closet. And if you don't flush your toilet but once a day or once a week, it probably will be somewhat of a nuisance in your house. We flush the toilet very often.

And so in the system we've designed we're going to flush the area under the production floor eight times a day. And if you take the top amount of water we're adding, it's 400 minutes out of 1440 minutes in a day so it's going to be flushed eight times a day. And when we do that, obviously we reduce the ammonia level in the production area, and I believe many of us know that an increase in the ammonia level decreases the response of the

pigs and also increases the incidence of respiratory disease. So we're working with the idea we're going to flush this facility quite frequently.

And you're going to say, well, where are you going to get all that water, but we'll have to wait until we get through it and then you'll see there's a lot of recycling. So we're going to flush into deep aerated treatment cells. Now, working with a standard formula Illinois uses to reduce BOD and applying them to our pig waste, we found out that if we have two cells with 42 days of residence time, you know, 21 days, and each cell, we can get our BOD down to where it is no problem when we're going out to a field. In other words, people say if your BOD is 60 you'll get odors. We're going to be down in the 30s so we've got 42 days of aerated treatment.

Now, we've taken a different approach from the previous speaker. In our deep aerated treatment cells we have the bottom 5 feet, which is anaerobic, and our compressed air comes in at 5 feet above the floor. So we have created an anaerobic digester at the base of our treatment

cell, and so our organic material that comes in is going to breakdown, in the absence of air and roughly at a temperature near your body temperature is going to breakdown into CH4, methane, carbon dioxide. We'll have nitrogen gas given off. We'll form some sulfides and in fact will create some water.

Now, all of these gases are soluble in the water, so rather than try to recover solids, our effort is to convert to solids, to gases which are soluble in the water. And after our 42 days of aeration, and I will add and this will knock you off your seat, we're adding 2500 cubic feet of air per pound of BOD. And you're going to say, man, what an energy bill that's going to be, and that's all part of our analysis. Why do we use 2500? Hey, the ten State standards is 1500 and we know you can always find a sewage treatment plant that will have an odor some time. Maybe it's a couple days a month or maybe it's a couple hours or whatever, but we all know that on occasion the most modern sewage treatment plant has an odor.

And so what we've sought to do, and we probably over killed and we're hoping to work on

some research with Illinois Institute of Technology on -- see, we've gone from 1500 to 2500 cubic feet of air per pound of BOD. Now, would 2100 do it? I don't know. I just know 2500 eliminates the odors, and obviously we need to optimize this but we work with the 2500. So we're adding lots of air. We're breaking solids down to gases. Those which don't breakdown we provided space to store them for at least 20 years. So sludge handling or solid handling takes place once maybe every 20 years.

Okay, we've stabilized our waste stream. We've made it into a liquid and now we can apply it through modern irrigation strategy, not trying to inject it into frozen soil, not trying to ship it overseas and so forth, but simply put in a center pivot standard irrigation facility and apply this uniformly over a growing crop over the growing season. Well, in a particular facility that we worked with we said the growing season is going to be 31 days because it's -- it happens not to be in Illinois. It's a little more severe climate. In Illinois we could irrigate for 35 weeks.

But if you take 35 weeks, seven passes of the center pivot boom over a piece of land in a

week, you realize that you have 35 times seven times what you're putting down, some nitrogen. Obviously if you're putting 250 pounds of nitrogen down, the most nitrogen that would ever be available for leaching would be essentially a pound an acre because each time you go you put down a pound versus injecting it into the soil and putting it all down maybe in one application.

Obviously you can't do this when you don't have a growing crop so we build a winter storage reservoir to hold reclaimed water so it can be then used as a resource. And obviously this reservoir fills up over the winter. It has to be emptied over the summer. So you need to add storage to any system in order to apply your reclaimed waste stream or your unreclaimed waste stream so it could fit with the climate conditions and the plant conditions because we know it's tough to put it down on frozen ground. We also know it's tough to put it down when it's raining. And if you look at the climate records, there's about 70 days a year in Illinois when rain occurs so you need to be able to work with that.

So if you look at the system -- and I

should have added we first go through a commonator (phonetic) or a macerator to reduce our waste to as fine a particle as we can. We then go through 42 days of heavy aerated treatment. We then go into winter storage and then we apply it onto a growing crop consistent with the crop and climate conditions. Now, the issue then becomes, hey, if you're going to do all that, can you afford it? In other words, is it going to be cost-effective?

Well, we've taken an operation that's going to be built in another state and it's a megahog operation. We took the costs of our facilities, 42 days of aerated treatment, 150 days of winter storage, center pivot rigs, the commonator, the monitoring wells, the blowers and the motors we need to generate the 2500 cubic feet of air and put it on an annualized cost at 7 1/2 percent interest and then the cost of operating, the electric and the -- we put in a reserve fund to renew it 2 percent of the cost of the machinery and you add a capital cost plus the OMN and divide it by the number of pigs you're going to produce a year. Our cost per pig was under a dollar a pig.

Now, you might say we can't afford a

dollar a pig, but if in fact the research on the reduction of ammonia on the pig growth -- and I've seen some studies that said if you had 50 parts per million in the aerial environment, it reduced the pig growth by 12 percent. I'm not talking about 12 percent. All I'm saying is if we handle our waste in this manner and we get a bonus of two pounds, hey, it's no cost. And when you look at it, we've greatly mitigated the odor that comes from the buildings and you're going to get a benefit of less ventilation where you're blowing the nap and the ammonia and so forth out to make the condition in the production floor better, that can be mitigated. And we're flushing so we're going to reduce the odors from the production area, not eliminate them.

But we will eliminate the odors from the treatment cells, and I'm saying eliminate because the waste comes in at the bottom and there's 20 feet of aerated water above that anaerobic digester, and you know what the little water trap does in your kitchen sink. Two inches of water keeps your kitchen from spelling like a sewer. Well, 20 feet of aerated water is a big buffer and

we're not handling sludge. And then the third source of odor is when we spread our waste. But remember, we've totally stabilized it. It's going out and there will be no odor there. We have the opportunity to regulate it in accordance with weather and climate conditions.

And what we're suggesting, why not try to take the waste and deal with them in a positive manner and in a cost-effective manner rather than try to locate them where nobody will smell them because that's impossible.

MS. LOZUK-LAWLESS: Thank you, Dr. Sheaffer. Do you have another copy of your prefiled testimony?

MR. SHEAFFER: Right, there's a couple here.

MS. LOZUK-LAWLESS: Good, then I can go ahead and enter that as an exhibit. Are there any questions for Dr. Sheaffer from anyone in the audience? Mr. Harrington?

MR. HARRINGTON: Is there a size at which your system becomes economical or below which it is not economical?

MR. SHEAFFER: What we have done is just work on one system we were asked to work on, and that's

a big one. We know that's economical. I would think with a modest amount of effort one could get down to where the economics would not be favorable. But in the large operation, as I said, the cost before we start taking benefits is less than a dollar a hog.

MR. HARRINGTON: How large of an operation was that?

MR. SHEAFFER: They were going to margin 67,000 hogs a year.

MR. HARRINGTON: In terms of the operation of the treatment lagoons, you're aerating from 5 feet --

MR. SHEAFFER: 5 feet below and then 20 feet of aerated water above it.

MR. HARRINGTON: Does the aeration itself strip any of the gases from the water?

MR. SHEAFFER: Well, if you wanted to deal with -- let's take nitrogen which is something that everybody is concerned about and we have pretty good data on that. We're going to lose 14 percent of our nitrogen in all forms in Cell 1. We'll lose 14 percent in Cell 2 and then we lose about 49 percent in our winter storage. And I'm talking

about nitrogen in all forms. I know how we can talk about TKN and pneumonia and nitrite and nitrate, but if you're going in a continuous system, we just deal with nitrogen in all forms of elemental nitrogens.

MR. HARRINGTON: You're not aerating in the winter storage?

MR. SHEAFFER: We do a little bit just so that it doesn't stratify.

MR. HARRINGTON: Does the aeration strip any other gases from the liquid?

MR. SHEAFFER: Well, there have been a number of studies of that, particularly on municipal wastewater and there has not been any evidence to suggest that there is some kind of an unusual gas coming off, at least none identified to date.

MR. HARRINGTON: Does it strip any bacteria or viruses from the water?

MR. SHEAFFER: Well, as you know, most bacteria, viruses, pathogens, their home is in anaerobic conditions and there's much research that shows 30 days of aerobic environment. You get essentially a 99.99 percent die off of pathogens. In fact, many people say 30 days in an aerobic pond

is as good a disinfection system as you can get.

MR. HARRINGTON: Did you calculate a capital cost per pig?

MR. SHEAFFER: We didn't do it that way. We just took our total costs, put it on 7 1/2 percent financing and considered two scenarios, one 20 years for a debt retirement and the other ten years for debt retirement, so we did not think of breaking it down so much capital for pig, which I've seen people doing here. We took it more as a project cost. You had to invest this much money, this is what it would cost you a year and then we added to our cost of energy. And incidentally we used 5 cents a kilowatt hour. Now, I know from a project we're doing in Virginia, if we can have access to both electric and natural gas, we can reduce that cost to 3 cents a kilowatt hour and in fact have worked out a project to do that.

MR. HARRINGTON: What is the impact of your system on other nutrients?

MR. SHEAFFER: Well, you know, phosphorus is going to be generally dissolved in water and the nitrates are going to tend to be dissolved, especially if we don't build up a biomass, which as

I said, we're avoiding the buildup of a biomass. Potassium's going to go out. These are going to be going out roughly as a 10-10-10 fertilizer. We lose much more nitrogen in our treatment process than phosphorus or potassium.

MR. HARRINGTON: Do you consider spring weather conditions, spring and early summer weather conditions in Illinois and limitations on using irrigation during that time on farmlands?

MR. SHEAFFER: Well, sure. We've got about 50 irrigation systems working in Illinois right now, and one of the problems you have to face when you're going to use the irrigation is either you're going to put more water down than you would need to to make a crop in order to get enough nutrients to produce the crop or you're going to put just the amount of water you need for supplemental irrigation and then you're going to have to add fertilizer. Now, obviously the fields we would use, we work with the infiltration rate of the soil and we never use more than 10 percent of the infiltration rate.

And with our storage, hey, if you had a wet week where it rained every day and let's say in

early May, then we wouldn't apply any. Well, we're talking about applications. We're talking about average, but we take into that average the rainfall. In other words, that could eliminate irrigation the first two weeks of May. But maybe in August it's really hot and dry and we instead of seven turns on our center pivot which would result in about 50 hours of irrigation, we may do nine or ten or eleven in order to try to keep the soil moisture at 90 percent field capacity in order to increase, maximize our crop yield.

MR. HARRINGTON: You mentioned 50 irrigation systems. Are any of those on hog farms in Illinois?

MR. SHEAFFER: No, I said there's no application of this on a hog farm but there will be shortly.

MR. HARRINGTON: What are these systems on?

MR. SHEAFFER: Municipal waste.

MR. HARRINGTON: What are they irrigating?

MR. SHEAFFER: Well, they irrigate anything from Jack Nicholas' golf course in North Barrington to Greg Norman's golf course in Long Grove to Hamilton Lakes, a corporate grounds outside of one

of the luxury hotels in the state to where we're growing corn to where we're growing prairie plants to get seed to sell. In other words, there's a whole range of crops that have been growing.

MR. HARRINGTON: Did I understand you to say that it is the improvement in the nitrogen ammonia conditions and the confinement buildings that makes this system economic?

MR. SHEAFFER: No, I haven't taken it. I just said whatever benefit you want to assign to that, you can reduce that dollar. It's under a dollar a pig but you can reduce that by whatever benefit you want to assign to it. In other words, if you say, hey, if we get a better reduction in ammonia levels without blowing so much air, hey, I'll take a little credit for that. Whatever you choose to do on that. I'm just working with some people at the University of Illinois. They've suggested that there would be a benefit associated with that. I have not tried to measure it. It would be in somebody else's field to put a measurement on it. But hey, if you put two pounds a pig, one pound a pig, that's a pretty substantial benefit. I have not chosen to do that.

MR. HARRINGTON: Are you irrigating with some of this material anywhere within a quarter mile of a nonfarm residence?

MR. SHEAFFER: We irrigate right up to million dollar houses and that's why I suggested the places you might look at. You might look at Jack Nicholas' golf course and see a $3 million house and the irrigation comes right up to the -- pretty much the patio and maybe they know, maybe they don't know, but that was their sewage a little while ago. You can do that.

I'd say the point is we're going to stabilize the waste. We're going to use it as a resource, and if we as a society are going to recycle, it's got to be done without a nuisance. If there's a nuisance associated with recycling, in my opinion it's going to be a struggle forever. And all I wanted to do was find out what investment you would have to make to eliminate the problem. Hey, I thought maybe it would cost too much. I can tell you what it costs. You might say, hey, if it costs a penny a pig, it's too much. Well, then it isn't feasible. I'm just saying it's under a dollar a pig to do this.

MR. HARRINGTON: When you irrigate within a quarter a mile of residences, do you incorporate this into the soil or do you spray irrigate?

MR. SHEAFFER: We spray.

MR. HARRINGTON: Do you think that's a reasonable way to apply it?

MR. SHEAFFER: I think that's the most economical way to apply it and if, in fact, I have something that doesn't have an odor, it's the way to do it.

MR. HARRINGTON: Have you done bacteriological testing on this?

MR. SHEAFFER: Yes.

MR. HARRINGTON: What was the results?

MR. SHEAFFER: We have zero fecal coliforms per hundred ML in our irrigation water, and you know, in many places they allow 200 in the ocean to go swimming in it. I think Lake Michigan is 20, so in fact we just had a medical doctor go through the second cell, and I said, hey, well, that means it's full body contact recreation, but I'm not going to advocate we want to swim in it. But see, if you want to ask on these parameters, then you've got to get the answer, and the reason for it is you've got

a long aerated treatment process, probably longer than you would have thought was possible.

And you might say, well, if you're going to balance, cut and fill and you're going to build -- you know, we've got a waste stream of -- and I forgot to mention this, the 200,000 gallons a day, we take reclaimed water and use it as flushing, so we're flushing back. I guess I didn't mention but you see the chart on the diagram. But we're trying to recycle. We're trying to make -- not trying, we can make a hog operation a really good neighbor. And see, you're the one who has to tell me. See, you know more about that than I do. Could you stand the cost of, you know, 79 cents a pig to be precise, and is there a benefit from reducing the ammonia level on the respiratory disease, on the weight gain?

Hey, maybe we can work together and say this is the thing to do. Is it patented? No. So all I'm saying is we took a process and applied it and I'm confident it will work just the way I said. And when you talk about economics, hey, there's a million dollar errors and emissions policy that goes along with it, so I mean, you

don't want to be wrong.

MS. LOZUK-LAWLESS: Thank you, Mr. Harrington. Mr. Taylor.

MR. TAYLOR I have one question. A. G. Taylor with the Agency. You mentioned that you lose 14 percent in the first and second stage of the process.

MR. SHEAFFER: The two cells. 14 in Cell 1, 14 percent.

MR. TAYLOR: And I recall 40 some percent.

MR. SHEAFFER: 49 in the winter storage.

MR. TAYLOR: In what form is that nitrogen lost?

MR. SHEAFFER: It primarily is N2.

MR. TAYLOR: In all three stages?

MR. SHEAFFER: Yes. And in fact, we have struggled with how can we keep more in because there are some places where people really want the nitrogen, but I can't figure out how to keep it. We just begin to lose it. Do you have an idea on how to keep it in? Over in Thailand they want to know and I don't know how to keep it in.

MS. LOZUK-LAWLESS: Do you have any follow-up questions, Mr. Taylor?

MR. TAYLOR: No.

MS. LOZUK-LAWLESS: Are there any other questions in the audience?

MS. MANNING: The facility you talked about designing in Michigan was a new facility, completely new facility?

MR. SHEAFFER: It's not in Michigan.

MS. MANNING: I'm sorry. But at any rate, the facility you were talking about, the engineering's been done, the economics have been done. Is the facility a brand-new facility?

MR. SHEAFFER: That's correct.

MS. MANNING: Are the economics different for a preexisting facility, applying your process already in a preexisting facility?

MR. SHEAFFER: If it's dispersed, obviously it's hard to get it all together, and I haven't really looked at it, but you know, it's something that obviously needs to be looked at and we were hoping -- I think there's a facility near your hometown, St. Anne's, that has had some problems, odors and so forth, and I thought, well, that's close. Some of the work we're hoping to get under way with Illinois Institute of Technology, that

hey, we could look to see what would be involved in retrofitting that. But we have not looked and it's something I would like to do but we haven't had the occasion to do it.

MS. MANNING: Thank you.

MS. LOZUK-LAWLESS: Mr. Laurent?

MR. LAURENT: One question that all of us in private industry are always seeking is, you know, a lot of times a lot of this work we do we fund our own pocket, our own time, and I'm sure that I speak for most people who are out there wanting to help. If there is funding available which you had discussion with -- Hankes I believe mentioned there's a certain EQIP program. If we could participate in that, it would help. We're not out there just to be capitalists to make money. We want to solve the problem.

MS. LOZUK-LAWLESS: Do you have a question for Dr. Sheaffer?

MR. LAURENT: Yes, I'd be interested to talking to you after the meeting.

MS. LOZUK-LAWLESS: Okay, thank you. Are there any other questions?

MR. RAO: I have a question for Dr. Sheaffer.

You mentioned about flood storage out of the treatment unit that you have, you have like a 20-year storage incorporated in it, so will it be in the treatment cell or is it a separate --

MR. SHEAFFER: No, it's going to be at the base of the treatment cell, so let's imagine we're sitting in Cell 1 and the waste comes in at floor level, and I should add this is lined, and at Illinois, we're building it according with Illinois EPA standards, the ten state standards so that our exfiltration will be one times ten to the minus seven centimeters per second. In other words, we're not saying, hey, hopefully it will seep into the ground and it will go away. We're treating it as a resource so we're containing it either with a two foot compacted clay liner or a membrane liner.

So the waste comes in at floor level. The air comes in at 5 feet and it's compressed air so the air is coming in at essentially your body temperature. And what we've created is a mesophilic digester that's 5 feet in height. And then the air through the static tube aerators comes above that and we add 20 feet of aerated water above it. So as the organic material comes in,

some of it's hard to break down, some of it breaks down very quickly, but we have space to store for at least 20 years those things which would be inorganic or the things that even though they are organic it takes a long time for them to break down. So we have space air, and at the end of 20 years, let's say our calculation we've been too conservative on municipal things, but let's say it's about 4 feet thick now so we say we ought to get it out. Your question is how do we get it out?

MR. RAO: Yes.

MR. SHEAFFER: Well, we don't take the system out of operation. We bring in a floating dredge and they are -- you can rent them. People use them to dredge mud out from around artifacts and we vacuum the bottom and we have to relocate it some place and that's something that it's not a totally closed system. We have to take that material and relocate it and it's primarily inorganic or very difficult to break down, you know, cellulose and so forth, and we could relocate that. It's not an agricultural resource. We may put it in the berm on the outside but we have to do something with

it.

But it's a once in a 20-year occurrence and you might say, well, that's going to stink. Well, we're going to add lime to it because we got to keep the pH at 11 while we're doing this and that will eliminate any odor-causing bacteria.

MR. RAO: And also the costs, if you were talking about aerating the cells, are they comparable to aeration that's done in municipal wastewater treatment plants like an activated sludge or aeration basin?

MR. SHEAFFER: Well, that would use 1500 cubic feet of air per pound of BOD. I told you we're providing 2500 because we know activated sludge plants on occasion have odors and we're trying to take the approach that we want this to be a good neighbor.

MR. RAO: Would it be possible for you to provide the Board with much more detailed costs analysis than what you're giving us right now?

MR. SHEAFFER: It would be possible, whether we would do it or not. I have it right here but I think the client with whom we're working would have to say to us first of all, hey, you can give the

Board the costs, and I personally would like to because I would like -- no, but I would like to see people look at it and make those judgments, hey, this is too costly, we can only handle 5 cents a pig or 10 cents a pig or whatever. And yes, well, there will be less ammonia and this and that but we've already overcome it with our fans and they're only costing us 2 cents a pig to blow the area, whatever.

MR. RAO: I'm not asking for you to provide us the information that you provide to your client, but in general terms, how much it would cost.

MR. SHEAFFER: We can do that.

MR. RAO: Something that would give us a better idea.

MR. SHEAFFER: Right, and if you listened I told you a lot of things. We used ten year, 7 1/2 percent interest -- at 20 years, 7 1/2 percent. I told you we assumed -- and our biggest cost was buying electricity or energy. I told you we're using 5 cents a kilowatt hour and I told you we're putting in 2500 cubic feet of air per pound of BOD, so I pretty much told you. You can start working and have them all there.

The system, when we balance, cut and fill we needed to move 105 cubic yards of earth -- 105,000, you got to put the right on there, but 105,000 cubic yards of earth for the 200,000 gallons a day allows us to build the containers for 42 days of aerated treatment and 150 days of winter storage.

MS. LOZUK-LAWLESS: Thank you, Dr. Sheaffer.

MR. RAO: Thanks.

MS. LOZUK-LAWLESS: Any further questions from the Board? Seeing no further questions, I'd like to note for the record that Dr. Sheaffer's testimony, Large Scale Confined Animal Facilities, Waste Streams and Resources has been marked as Exhibit No. 24. Thank you, gentlemen, and we can take a five-minute break, have these gentlemen sit back down and then we'll have the Department of Agriculture, if you could please come forward and we'll go on with prefiled questions which are directed to the Department of Agriculture. Thank you.

(A recess was taken at 2:44 p.m. and proceedings resumed at 2:56 p.m.)

MS. LOZUK-LAWLESS: Back on the record. First

I'd like to ask if anyone has any questions for the Department of Agriculture at this time. Yes, if you could just state your name for the record.

MR. THOMPSON: My name's Dave Thompson. I'm an egg farmer from near Pearl City, Illinois. I'd like to know how you arrived -- how the animal units were arrived for chickens, how you arrived at the animal units for chickens for the recommendation.

MR. BORUFF: The chart that we used values regarding animal units is one that was preexisting that was used in Title 35 of the Environmental Protection Act, and also then upon research we found it to be consistent with the approaches used by, like, Midwest Plant Service or others in the design criteria phase of it and so it was our opinion that those numbers were pretty universal by nature, and that's why we -- rather than reinvent the wheel, that's why we chose to use those in the State here.

MR. THOMPSON: You did not make any allowance for young chickens, for pullets, birds that were not of egg-laying age. You did for young hogs. There's a difference in animal units for hogs but

there's not for chickens, and for instance, when we get a chick a day old and we keep that chick and it grows until approximately 16 to 17 weeks of age, it's going to eat about 11 pounds of feed during that time and during that 16 to 17 weeks. A mature chicken is going to eat about 25 to 26 pounds of feed, so you can see it's much less than half, so I'm wondering why there was not an allowance made for a lesser amount of animal units for young chickens when you did that for hogs. And you know, why didn't you do that for chickens too?

MR. BORUFF: Kind of gets back, as I said a minute ago, but also as that refers to the whole genesis of this, of the Livestock Management Facilities Act because when the Act was being developed and it was decided to use the animal unit criteria, they looked at what was preexisting and then that's what they carried through. And it's actually in Section 10-10 of the Act itself where it defines animal units and gives those values. And I can only assume that probably since the swine industry was so commonplace to the State and it would be applicable to so many farms, that's why those two measurements were given.

I can understand in your situation where your industry in the chicken industry is a little bit unique and maybe it would be to your benefit to have a further breakdown. It was just that's the way it was written in the statute, that it didn't give that smaller breakdown or that breakdown for smaller chickens in your case.

MR. THOMPSON: Yeah, I understand that. The Illinois Poultry Industry Council was not contacted for any input on this until after the regulations or most of the testimony had already been given and so I'm wondering is there a possibility that the Department of Ag can recommend a lower -- a lesser figure in animal units for pullets. Is it too late to do that?

MR. BORUFF: I doubt that it's too late to consider that and I guess I'd refer to maybe the Board over here. The animal units are laid out by statute, but if it's possible to redefine that, I don't know. Let me ask you this though, if -- is there research somewhere that exists that would give us some pretty good indication what those values should be?

MR. THOMPSON: Well, you can go by what a bird

eats and you've got manuals that provide -- you know, we can provide you and show you what a bird is supposed to eat over so many weeks, and yeah, it's documented. So if a bird is going to eat --

MS. LOZUK-LAWLESS: Excuse me. I'd like to swear you in because right now you're giving testimony as opposed to asking a question. Would you mind?

MR. THOMPSON: That's fine.

DAVID THOMPSON,

being first duly sworn, testified as follows:

MS. LOZUK-LAWLESS: I'm sorry, go ahead.

MR. THOMPSON: So there are manuals put out, like DeKalb Ag, DeKalb Poultry puts out a manual and tells you how much your bird is supposed to eat each week and how much they're supposed to eat over the 17 weeks or the 16 weeks that you grow them and the numbers are -- that we achieve are very, very close to those numbers. So if you would need documentation, I'm sure that we could easily provide that to you.

MR. FLEMAL: I think it would be very useful if we did have that on the record, and I understand

perhaps you can join us at Galesburg. It would be possible to enter anything you might have at that early stage in the record or as you're aware, we receive public comments on this proceeding through the middle of February, February 14th is our close-off date. I would note, however, that as Mr. Boruff has indicated, this definition is statutory. There's going to be some question as to whether the Board would have authority to modify this definition as part of this rulemaking. We have to entertain the possibility that maybe the way this has to be considered is to look at an actual statutory change.

Mr. Lawfer is sitting right behind you. There's a man who has insight into that process, and having a word with him might be worthwhile. This is not the first time that we've encountered questions as to whether this table is appropriate for all of the various kinds of potential livestock, and you may have identified one of the spots where there is a gap in the table and in the definition.

MS. MANNING: If I might interject as well, the statute identifies, it says a laying hen or a

broiler. If you want -- we have no definition, however, of what a laying hen or a broiler is and if you wanted to provide, you know, one like that, I mean, there's a possibility that we can interpret the regulation, but certainly we can't go beyond whatever it is that the legislature has declared to be the animal unit conversion for that particular -- for a hen.

We had the same question, interestingly. Our first public comment that was filed in this proceeding was filed by the horse industry by Walker Standardbred which is a horse facility near me in Sherman, Illinois, and their concern was the number for the horses because it's two times for the horses and they didn't think that conversion table really for the horses was appropriate either. And our response probably is the same, that's the statutory requirement is that it has to be multiplied by two, the conversion to have a horse.

My understanding of the genesis of all of this is not only did it come from our original Title 35 regulations but my understanding is it ultimately derived from federal regulations that

were created way back even before our Title 35 regulations, so there were federal requirements that were written into State regulations. Now they have been adopted into State law and we're dealing with them the second time around for the State regulatory context so they're pretty much imbedded in the process.

If you want to give us information to allow us to read it in a context consistent with that, we'd be more than happy to receive any of that, but I should let you know that people do have some concerns that are being raised as to the other industries that weren't necessarily the focus, you know, of the Livestock Management Facilities task force, and the horses is the other example on that.

MR. THOMPSON: I guess I'm pointing out you did not make an allowance for young, immature chickens, for pullets, and there is quite a difference in the amount of feed that the bird consumes so therefore there would be quite a difference in the amount of manure that would be expelled too.

MS. MANNING: I think that was the key for the original conversion table too in terms of the

weight of the animal and the amount of waste. I may be wrong about that. In terms of the federal regulations, Ron, do you have information on that, how the unit was ultimately --

MR. FLEMAL: I'd look to Mr. Taylor here or perhaps the Department of Agriculture to quote them in this.

MS. MANNING: A. G., did you want to say something on the record?

MR. TAYLOR: We got some information that we'd like to review.

MS. MANNING: That would be good if you could enlighten us. That might help us with the whole public comment we have with the horse industry and a couple of the comments we had as well, if you could help us with the genesis of those numbers. Thank you.

MS. LOZUK-LAWLESS: Mr. Marlin?

MR. MARLIN: John Marlin, I'm already sworn at both hearings. Some states seem to use the live weight of the animals as opposed to animal units in the grades. I think Iowa is one of them.

MS. LOZUK-LAWLESS: Thank you, Mr. Marlin. Mr. Boruff, would you like to introduce your

witnesses and then the court reporter can swear them in.

MR. BORUFF: Yes. First of all I'd like to introduce Mr. Warren Goetsch and he's the Chief of the Bureau of Environmental Programs for the Department of Agriculture, and Scott Frank who supervised the aviary program and has been working closely with this -- the adoption of these rules and the law in the Department of Agriculture as well. Both of them gave extensive testimony at Jacksonville but not yet today.

MS. LOZUK-LAWLESS: Thank you.

(WHEREUPON all those were duly sworn.)

MS. LOZUK-LAWLESS: Thank you, gentleman. Are there any further questions of anyone in the audience before we get to the prefiled questions of the Department of Agriculture directed to the Department of Agriculture? No?

All right, then Mr. Harrington, if you'd like to proceed with your prefiled questions.

MR. HARRINGTON: I'll try speaking from here. If the people have a problem hearing me, send up a signal or something and I'll move to a more convenient location.

I've talked to the Department of Agricultural witnesses and we are going to go through the questions generally in order as they were filed, and if we can find a way to speed the process up as we go along, we both agreed to do so.

MS. LOZUK-LAWLESS: Thank you.

MR. HARRINGTON: Is it your opinion and that of the Department that the proposed regulations when read together with the existing Board regulations will ensure the protection of public health and the environment?

MR. BORUFF: And I'm going to take a shot at that answer. Before we do, I was just going to also go along with what Mr. Harrington said, is that we appreciate the opportunity to have looked at these questions in advance. As a Department we've got some key points that we would like to cover in the answers. As such, we're going to be reading the responses and then also Mr. Goetsch and Mr. Frank, depending on if that question pertains to part of their testimony, will be answering some as well. However, Mr. Harrington, if we don't cover things adequately, please feel free to ask us

for follow-up or whatever.

But yes, it is our Department's opinion that the proposed regulations take into account the best science and technical information available to us today, and based upon today's knowledge, our Department does feel that these regulations will provide a favorable economic climate for livestock production in the State of Illinois while also providing a good, sound level of environmental protection.

MR. HARRINGTON: Is it your opinion that the proposed regulations in connection with the Board's existing regulations will minimize the possibility of a public nuisance interfering with neighboring landowners, provide adequate remedy should one occur?

MR. BORUFF: It is our Department's opinion that the proposed regulations will minimize the possibility of a public nuisance; however, the intent of the Livestock Management Facilities Act is to prevent problems before they occur, and as such they provide little or no remedies should a nuisance occur. Provisions for providing remedies are found in other state statutes.

MR. HARRINGTON: Skipping to Question 4, is it the position of the Department and its witnesses that the design standards set forth in the proposed regulations in reference to technical material are sufficient with respect to the subject thereof, the design, to protect the public health and environment with an adequate margin of safety?

MR. BORUFF: We have a high level of confidence that facilities which are designed and constructed according to these criteria should not pose a threat to public health or to the environment. It's our position that the design standards and the reference technical material which we have presented take into account the best and the most current information available regarding property design and construction of these types of facilities.

MR. HARRINGTON: With respect to groundwater protection, is it your position and that of the Department that the facilities built according to proposed standards will be adequate to protect groundwater from contaminations from the lagoon?

MR. BORUFF: It is the position of the Illinois Department of Agriculture that facilities built

according to our proposed standards will protect groundwater resources from contamination. The standards which we have proposed provide a differential approach to managing the risk based upon hydrologic and geologic criteria. As such, we feel that these proposed standards offer a fair balance between protecting the environment while at the same time being economically reasonable for producers.

MR. HARRINGTON: In the case of facilities which are allowed to be constructed without membrane liners, would you please explain the mechanisms by which these lagoons will be prevented from contaminating the groundwater.

MR. BORUFF: Lagoons will be allowed to be constructed without membrane liners only in those situations where the depth to groundwater is over 50 feet from the proposed lagoon bottom, and as such, the possibility of leaching is extremely minimal. Also, based upon the soil borings which would be performed prior to construction, the absence of any aquifer material within that profile would support the notion that in situ soils are adequate to compact and seal the bottom of the

lagoon.

MR. HARRINGTON: Skipping to Question 8, do you have any additional references to support that position?

MR. BORUFF: Engineering standards adopted by the American Society of Agricultural Engineers as well as other professional organizations support my comments regarding clay and also what we would refer to as bentonite technology as well.

MR. HARRINGTON: Is the same technology recognized for wastewater treatment facilities operated by municipalities and industries?

MR. BORUFF: To your knowledge the technology which we are proposing is also used for wastewater treatment facilities operated by municipalities and by industries.

MR. HARRINGTON: Does the use of the engineered membrane liners where required by the proposed regulations protect groundwater and the circumstances where it is required?

MR. BORUFF: Engineered membrane liners commonly referred to as -- commonly manufactured, excuse me, from vinyl-based materials, have been used extensively in municipal and industrial

facilities and if properly designed and installed will provide a high level of protection to groundwater resources.

MR. HARRINGTON: Skipping to Question 13, are you aware of any instances in Illinois or elsewhere of lagoons failing to protect groundwater when built to the proposed standards?

MR. BORUFF: Prior to the Livestock Management Facilities Act and its associated rules, there were no regulations in the State of Illinois pertaining to the siting and construction of animal waste lagoons. As such, I'm unable to comment on how existing lagoons in the State have been constructed. However, the design standards outlined in these proposed regulations are based upon the best available construction techniques and recommendations as referenced by the American Society of Ag Engineers. To our knowledge lagoons which have been constructed according to these criteria have protected groundwater resources as designed.

MR. HARRINGTON: Are you aware of whether lagoons built to these standards have been in use in Illinois or other states?

MR. BORUFF: In many instances the information available from both the American Society of Ag Engineers and the Natural Resource Conservation Service guidelines have been used in formulating the design and construction of lagoons for many years, but there is no way of being able to accurately state to what extent these designs have been followed in the construction of existing lagoons here in Illinois or other states as well.

MR. HARRINGTON: Are you aware of regulations in other states concerning the design of waste lagoons?

MR. BORUFF: We are aware of other states' efforts in providing groundwater protection through the implementation of design standards for animal waste lagoons and the requirements of waste management plans. Design standards and waste management plan requirements which we have referenced take into account the most current technology and the best information available and other states have taken this same approach as well.

MR. HARRINGTON: Are the proposed regulations referring to lagoon design in Illinois as stringent

as those in other states regarding the design of the lagoon?

MR. BORUFF: It's difficult to form a judgment of what may or may not be as stringent as it pertains to both design standards for lagoons and for waste management plans. However, it is safe to say that the standards which we are proposing are very similar to the standards adopted by other states when they've addressed this issue, keeping in mind that other states may have design needs based upon their specific soil types, topography and weather conditions.

MR. HARRINGTON: Moving to 19, will a lagoon which is properly built and properly operated according to the standards set forth in the proposal be a source of significant odor problems in your opinion?

MR. BORUFF: A livestock waste lagoon properly built and operated according to the standards set forth in this proposal should not be a significant source of odor. However, terms such as significant are subjective and difficult to address as certain individuals may have varying interpretations of what may be significant or not.

MR. HARRINGTON: Skipping 20 and 21, to your knowledge have lagoons constructed largely in compliance with these standards been the source of significant odor problems beyond the setback zones called for in the proposed regulations?

MR. BORUFF: The Illinois Environmental Protection Agency has been responsible for dealing with complaints regarding odors from livestock lagoons. As a result, our Department does not have past regulatory statistics in this issue. However, based upon the information which we have received from a variety of sources, it would appear to our Department that lagoons have not been any more of a source of odors when properly managed and situated, taking into account the setback zones called for on this proposal.

MR. HARRINGTON: Would the animal feeding operations themselves be a likely source of significant odor problems if properly carried out?

MR. BORUFF: Animal feeding operations need not be a source of odor if properly managed.

MR. HARRINGTON: Why is that?

MR. BORUFF: The way in which animal wastes are hauled and applied to the land have a great deal to

do with whether or not odor occurs. In the case of operations making use of confinement buildings, odors may be concentrated, especially near exhaust fans. The intent of the proposed regulations is to provide for adequate setback zones which will dilute the odor coming from operations which might offend surrounding neighbors.

MR. HARRINGTON: Skipping 25, will you expect that a properly operated facility built according to these standards would actually produce less odor than a pasture, open-feed facility that is not equipped to properly operate a waste lagoon?

MR. BORUFF: There are many variables which can affect the output of odor from an operation. However, it should be noted that pasture or open feeding facilities that are poorly managed can, in fact, be a source of odor. By the same token, confinement operations that are well managed may have a minimal amount of odor as well.

MR. HARRINGTON: What would be the principal source of the odor, if any, from a concentrated animal feeding operation built in compliance with the proposed rules?

MR. BORUFF: A concentrated feeding operation

built in compliance with these proposed rules, as would be the case with any livestock operation, may have several sources of potential odor. One source might be from the buildings themselves, especially ventilation equipment, another might be the manure storage pits located under the confinement buildings. If a lagoon system is in use it could be a potential source of odor, and finally, the application of animal waste to ag land could be a source of odor during and after application.

MR. HARRINGTON: Would not the improper application of manure to the fields be the most significant odor problem?

MR. BORUFF: I believe it would be difficult to quantify what might be the principal source of odor from a concentrated feeding operation. If all phases of the operation and sources that I've outlined are properly managed, there would be a minimal odor from any of them. However, mismanagement with any of the sources could lead to major or significant odor problems.

MR. HARRINGTON: Under the proposed regulations could you briefly describe what steps are taken to minimize the potential for the improper application

of manure in the fields.

MR. BORUFF: The proposed regulations include specific requirements for the development and implementation of livestock waste plans. Included in those requirements are provisions relative to the application of manure, including setback distances.

MR. HARRINGTON: And to follow up, would the compliance with the plans called for in the regulations minimize the potential impact of odor from the manure operations?

MR. BORUFF: We believe that they would.

MR. HARRINGTON: Skipping to 31, are you aware of any of the concerns expressed by some citizens that there may be significant airborne pathogens from livestock waste lagoons?

MR. BORUFF: Yes, the Department is aware that some folks have raised those concerns.

MR. HARRINGTON: Does the Department have a position on the likelihood of this problem occurring?

MR. BORUFF: The Department is not aware of any scientific basis for this concern and we do not have a position on this issue.

MR. HARRINGTON: Is it the Department's opinion that the setbacks and proposed regulations are adequate to protect the neighboring property owners from unreasonable interference with the use of their homes and other places of common assembly?

MR. BORUFF: It's the Department's position that the general assembly by including the increases to the setback distances contained in the existing regulations intended these increases to protect neighboring properties from unreasonable interference with the use of their homes or other places of common assembly. The Department has no reason to believe that the use of these setbacks will not result in this intended purpose.

MR. HARRINGTON: Has the Department considered the testimony of the DNR witnesses concerning the setbacks and the suggestion that setbacks run from the property line and not from structures or areas within the property?

MR. BORUFF: The issue of setback distance application in terms of IDNR held and managed property was discussed during meetings of the Livestock Management Facilities Act advisory committee. The Department considered those

discussions during the crafting of the rule proposal but felt that the measurement of the setback distance from the property line would be an unreasonable intrusion into the rights of adjacent property owners and these measurements exceeded the intent of the original legislation.

MR. HARRINGTON: Going to Part 2 of the question --

MS. MANNING: Before you go on to this, Mr. Harrington, I have a follow-up question. I want to take us back to the question of odor and management practices and that sort of thing, and I understand your testimony, Mr. Boruff, that good management practices should really dissipate a lot of the odor concerns. That's true in terms of the rule proposal, the management practices in terms of application, those kinds of issues, but what in the rule might dissipate odor by using proper management at the lagoon itself? Odor is generated, I think one of the witnesses said at the production level while it sits in it, first; secondly, while it sits in the lagoon; and thirdly, in its application.

In that second part there while it sits in

the lagoon, is there anything in the rule proposal that mitigates I guess the odor at that stage?

MR. BORUFF: It seems that one of the keys to dissipating or at least decreasing the amount of odor that may come from a lagoon is having the proper dilution effect within the lagoon, and when the legislation itself was being drawn together, we were very conscious of not ever wanting to put together a situation where it would encourage the undersizing of a lagoon. If anything we would like to encourage oversizing the lagoons as much as possible, here again to get that maximum dilution effect. So that's one of the things that was taken into consideration.

In the proposed rules here, one of the things that we talk about is that there be a certain amount of what's known as precharging where water would be placed in the lagoon prior to any manure being placed into the lagoon in service. Here again the reasoning being to get a very proper dilution effect which would thereby decrease odors. Also the proposed rules that we have before you speak to the amount of freeborn or also when pumping should occur and when it should stop. The

intent here once again is to keep the proper dilution, and so experts have told us that that seems to be the key to decreasing odors is making sure you have enough water and dilution within the lagoon at any one time.

MS. MANNING: Thank you. Mr. Harrington?

MS. LOZUK-LAWLESS: One more, Marie Tipsord.

MS. TIPSORD: I have a question regarding that last question Mr. Harrington asked. Your response on the DNR witness' discussion of setbacks said that you feel that it would -- after taking in the discussions of the advisory committee you feel it would be unreasonable intrusion and exceeds the intent of the legislation. I was wondering if you have any specific legislative debates or anything like that which you base that on or is that just based on your general feel of the legislation and a general reading of the legislation?

MR. BORUFF: On both. During the discussion when the bill was being formulated at the legislative level the discussion at that time was held talking about places of common assembly, being things like museums or campgrounds or those types of things, but throughout the discussion, you know,

no one at that point in time was talking about the boundaries as they're outlined now, so that was both in the discussions that were held and kind of working through this process is the basis for our answer.

MS. TIPSORD: Was any of that discussed, for example, during the -- in the legislative debates formally?

MR. BORUFF: I couldn't say that it was or wasn't.

MS. TIPSORD: Okay, thank you.

MS. LOZUK-LAWLESS: Mr. Marlin, do you have a follow-up question?

MR. MARLIN: At those meetings, were representatives of DNR, the public or other Agencies that might have raised that question present in the discussions you're referring to?

MR. BORUFF: Throughout the legislative process there were a number of different meetings that occurred, some where members of other Agencies were present, some other legislators or industry representatives were. The same cast of characters was never at each individual meeting but kind of a resolving group of folks.

MS. LOZUK-LAWLESS: Thank you, Mr. Boruff. Mr. Harrington? Excuse me, one more. Mr. Mudgett?

MR. MUDGETT: I might be able to shed a little bit of light on question No. 31 about airborne pathogens. I'm with the Department of Public Health. There have been studies, and I think they're actually fairly old at this point, of health effects on sewage treatment plant workers where the wastewater was actually being aerated which would not be the case here. The findings in those studies showed that actually sewage treatment plant workers as a group were probably healthier than the general population, maybe that they had built up an immunity to the organisms they are encountering, but there really was nothing that showed that they were adversely affected by airborne pathogens, and again, that's in the case of aerated treatment systems which obviously should produce more airborne organisms.

MS. MANNING: Thank you.

MS. LOZUK-LAWLESS: Thank you, Mr. Mudgett.

MR. HARRINGTON: Just for the record, I would like it noted Mr. Mudgett was sworn earlier today.

MS. LOZUK-LAWLESS: Yes, he was.

MR. BORUFF: One thing, I believe we maybe moved beyond setbacks, but I wanted to point out too that at the last meeting in Jacksonville members of the Board asked if we had looked at regulations in other states as well and how they may have addressed the various issues and we will be prior to the ending of this process giving you that information. However, one state in particular, I'd like to read something to you here and as follows: "A point that might be of interest to the Board is the way in which the Iowa law within its setback provisions addresses setback distances applied to state-owned properties," and so now I'm going to be reading directly from the statute in Iowa as follows: "The closest point of a public use area shall be measured from the closest point of the facilities which attract the public to congregate and remain in the area for significant periods of time. A property boundary land of the" -- excuse me, "a property boundary line of the land owned by the United States, the State or political subdivision which contains a public use area, shall not be used as a point of

measurement for the closest point unless a property boundary line coincides with the closest point in the facilities."

And this is similar to our Department's understanding of the legislative intent within the Livestock Management Facilities Act and it's in direct opposition of the proposal being suggested by the Illinois Department of Natural Resources.

MS. LOZUK-LAWLESS: What is the cite to that Iowa statute?

MS. MANNING: They're going to be presenting that.

MR. BORUFF: That will all be part of our exhibit later on.

MS. LOZUK-LAWLESS: All right. Mr. Harrington, you want to continue?

MR. HARRINGTON: In your testimony earlier you referred to a house trailer being moved near a proposed facility so as to bring it within a setback zone. Do you recall that testimony?

MR. BORUFF: Yes, I do.

MR. HARRINGTON: And is that a specific instance of which the Department is aware?

MR. BORUFF: Yes, it is.

MR. HARRINGTON: Was that trailer actually occupied full-time?

MR. BORUFF: I don't know what level of occupancy it has. I don't know if it's part or whole time.

MR. HARRINGTON: How do you propose to deal with this problem in the regulations?

MR. BORUFF: The Department believes this to be an issue of timing. In the case of the siting of the lagoon the rule proposal requires a site investigation with soil borings which require a significant investment of both time and money. The Department would suggest that the initiation of any construction, including site investigation activities and/or a lagoon registration with the Department, should constitute a specific point in time for the application of setbacks. The installation of a house trailer or any other type of residence after this time should not be allowed to have an impact on the applicable setback distances.

The Department suggests that either the construction or maybe some type of an optional nonfee registration should be recognized to allow

for livestock management facilities which do not include the use of a lagoon and thereby remain unaffected by this possible situation.

MR. HARRINGTON: Is there a follow-up to that?

MR. FLEMAL: I think I've got one. If we were to implement some kind of start time, would it -- would you envision that time also expiring eventually?

MR. BORUFF: I suppose that that would be a possibility as well.

MR. FLEMAL: It seems to me that if we consider the kind of circumstances you're trying to address as an abuse, there's also a potential abuse on the other side that I might dig a hole in every possible place in the State of Illinois and say that's the beginning of my lagoon and it's -- prohibits any subsequent development of ever having an effect on a livestock facility then.

MR. BORUFF: Right.

MR. HARRINGTON: Would a definition provided for a continuous process of development from the beginning of the point be sufficient for that purpose?

MR. BORUFF: That may take into account what

Mr. Flemal or Dr. Flemal has brought. I'd have to think about that a minute but that might be a possible answer.

MR. HARRINGTON: Thinking of a definition similar to that used in new source permitted which we can submit, I'm sure the Board is well aware of. Would a definition of an occupied residence also help solve the problem?

MR. BORUFF: A definition of occupied residence could possibly provide clarification, but I do not believe that it would completely solve the question of timing.

MR. HARRINGTON: For example, would a definition that provided that an occupied residence would be one that had to be regularly occupied and was -- met all legal requirements for human habitation?

MR. BORUFF: That could be a possibility.

MR. HARRINGTON: What do you believe are the boundaries for the definition of populated area as proposed?

MR. BORUFF: The boundary of a populated area is determined by using the proposed livestock facility as a center point of a circle with the

applicable setback distances as the radius of that circle.

MR. MARLIN: I have a follow-up. If you're talking about a lagoon of eight to ten acres, doesn't statute refer to the corner of the property, the corner of the lagoon and things of that nature? I'm wondering the center, you say the center. I've never seen the word center used before. Is that something I've missed?

MR. BORUFF: I can't say as to what you may or may have missed -- may not have missed, but in the example as you've cited, Mr. Marlin, that may be possible, and the definition that I gave may have to be modified a bit. But the definition that I gave was intended for a person to get an understanding of how the boundary would be determined. That could be fine tuned later, given a specific situation.

MR. HARRINGTON: Skipping to 44 unless you have something additional you'd like to add before then, is the inclusion of setbacks from populated areas in the proposal meant to address odor concerns?

MR. BORUFF: Primarily, yes.

MR. HARRINGTON: And a slightly modified

version of 45, and I think you've already answered it, are the setbacks considered to be from the area where people are located or from other objects such as buildings or property perimeters?

MR. BORUFF: It's our feeling that the setbacks would be applied from objects such as homes, buildings or other structures.

MR. HARRINGTON: Which are, in fact, occupied by human beings?

MR. BORUFF: Here again, that's the situation where we'd ask for some clarification, but it would be our understanding that those would be occupied residences or structures.

MR. HARRINGTON: Moving to 46, a series of questions here deal largely with the licensed, professional engineer question. Is it the Department's position that the RCS staff and other professionals are trained to make judgments regarding the standards for livestock waste lagoons and not be qualified to certify compliance with the standards set forth in these parts?

MR. BORUFF: From this point on for a few questions I'd ask Mr. Goetsch to respond. He was the one that offered the testimony for that

subpart.

WARREN D. GOETSCH,

being previously duly sworn, testified as follows:

MR. GOETSCH: The registration and certification processes contained in the rule proposal include the need for various degrees of geological engineering and construction expertise. The levels of expertise will also vary with the scope of the project both in terms of size and specific site characteristics. All projects will be required to include a site investigation. Some will require the installation of a synthetic or other special liner type and a substance of those projects will include the installation and maintenance of a groundwater monitoring well network. It is the Department's position that due to the wide variety and complexity of these projects the requirement of certification by a licensed, professional engineer associated with either the site investigation and the liner when required is appropriate. Further, the Department acknowledges that consultation with NRCS staff will certainly be valuable to many producers as they

develop initial plans for projects but respectfully suggest that they will not be in a position to provide the needed time and resources necessary for the type of project oversight and compliance monitoring which would allow them to provide certification of either the site investigation or the design, construction and installation of liners when required.

MR. HARRINGTON: Is it the intent of the Department to place liability to the site certification process on the licensed, professional engineer?

MR. GOETSCH: The rule proposal provides for certification by a licensed, professional engineer or registered professional geologist that the site investigation was conducted under their direction and that it has resulted in a rating of the site relative to the presence or absence of aquifer material within one of three depth ranges. Further, the proposal requires the design, construction and installation of a liner if required by the site investigation be certified by licensed, professional engineers meeting the requirements of the rule. If the issuance of such

certifications includes the assumption of a liability on the part of the licensed, professional engineer, then the answer to your question is yes.

MR. HARRINGTON: Is the Department aware that manufacturers of synthetic liners often require their own technicians to install the liners in order for the warranty to be valid?

MR. GOETSCH: Yes, the Department is aware that many manufacturers require the use of their own technicians in the installation of their products.

MR. HARRINGTON: Does the Department believe that a licensed, professional engineer ought to take the place of a manufacturer's technician in supervising installation?

MR. GOETSCH: No, the Department does not intend to require that the licensed, professional engineer replace the manufacturer's technicians but rather to be familiar with all the manufacturer and installation requirements, including site preparation requirements, quality control programs, compatibility statements and to in general oversee all the various facets related to this accessible design and installation of the liner.

The Department envisioned that the LPE

would relate to the liner technicians as a general contractor might relate to any other subcontractor on a construction project. The LPE would be depending on the performance of the soil excavator for proper site preparation, the liner technician for the proper installation of the liner and other subcontractors for their respective portions of the project. The Department contends that the LPE will be the only person in an appropriate position to certify that all the various components of the design, construction and installation of the liner have been appropriately brought together to result in a liner which meets the requirement of the standard.

MR. HARRINGTON: Skipping to Question 51, all of the others have really been answered, with regard to Section 506.203(b)(4) of the proposal, your testimony states that some specific location information is included to ensure that the owner or operator of the lagoon considers whether these items are possibly present at the site that the appropriate setback is maintained. Does the Department ever consider requiring that the owner-operator list only those wells, residences,

streams and populated areas that are within a specific distance such as 400 feet of the setback zone from the lagoon rather than the nearest ones which may be a long distance away?

MR. GOETSCH: The Department included the requirement of nearest to allow for the disclosure of these locations which might be useful for both the small distances such as the 400 feet range as you suggest as well as possibly larger distances which might have an applicability to facility setback distances. It simply seemed simpler for the Department and the producer to require the disclosure of the nearest item in lieu of stating specific ranges for each item.

MR. HARRINGTON: Well, but as follow-up, as I read this section there is some of the things that are listed that are -- should be obvious, such as a residence, but there are other things which may not be as obvious, such as an abandoned well, which would require a search and some ever-expanding circle from the proposed waste lagoon, and I suppose my question is aimed at is there a reasonable distance that can be determined for how far somebody should have to search for the nearest

abandoned well, for example, or drainage well or injection well recognizing they should be registered with the State but many are not. How does one go about knowing whether one has found the nearest one?

MR. GOETSCH: I think I understand your point a little clearer than I did earlier. Our concern was to and remains to ensure that both the owner-operator and the Department are able to exchange appropriate information, and again, trying to keep things as simple as possible, it's easier to -- or at least it was thought to be in looking at other permitting programs or other programs that exchanged this kind of information, it's easier to ask for the closest. But perhaps some kind of greatest distance to make that search within might be appropriate to solve that problem.

MR. HARRINGTON: We can consider that as we go forward. What is the statutory authority for the Department's assertion that it may as a condition of registration require periodic site inspections?

MR. GOETSCH: Several statements contained within Section 15 of the Livestock Management Facilities Act provide authority to the Department

relative to site investigations. First, Section 15(b) contains the statement, "The Department shall inspect an earth and livestock waste lagoon during at least one of the following phases: Preconstruction, construction and postconstruction. The Department shall require modifications when necessary to bring construction in compliance with the standards as set forth in Subsection A of Section 15."

This statement contains the phrase at least, which suggests that more numerous sites visited by the Department would be advantageous to the program. Secondly, at Section 15(a) the statute contains the statement, "The owner or operator of the earth and livestock" -- "the earth and livestock lagoon may with approval from the Department modify or exceed these standards in order to meet site specific objectives. The Department shall determine compliance with these requirements."

The mandate to the Department here is to evaluate a modification or exceedence of the standard. Such oversight by the Department due to the specific nature of a proposed design may

require periodic site inspections to confirm proper performance of the design, thus a requirement for periodic site inspection as a condition of registration should be considered as part of the alternative design which is being registered by the Department.

And finally, Section 15(a) includes the statement, "The Department may require changes in design or additional requirements to protect groundwater such as extra liner depth or synthetic liners when it appears groundwater could be impacted."

As part of this proposal, the Department is setting forth criteria regarding a site geology investigation approach which would allow for such a determination to be made. As a result, some designs would include the use of synthetic liners and/or groundwater monitoring well networks. These designs will by their very nature require additional site visits by Department personnel to ensure that they are performing appropriately. Thus, the Department believes that periodic site inspections are an integral part of these designs and are therefore a part of the authority provided

under this section of the Livestock Management Facilities Act.

MR. HARRINGTON: Combining Questions 53 and 54, did the Department consider any limitations to inspections, such as the inspector during the periodic inspection be accompanied by owner or operator of certified manager or the owner-operator be provided with a copy of any report concluding inspection or be provided with any notices of deficiency?

MR. GOETSCH: Considering other similar programs administered by the Department, such as the agrichemical facility containment program or the Department's nursery inspection program where there are no statutory or regulatory limitations to the number of site inspections conducted by Department personnel, too frequent site inspections have never been an issue. Also, considering that funding and staffing levels at the Department, the appropriate administration of this and other programs at the Department would not allow for more numerous site visits to a site than were absolutely necessary to ensure the proper function of a design.

The statutory language at Section 15(b) of the Act requires that the person making inspections shall comply with reasonable animal health protection procedures as requested by the owner or the operator. This statement implies that the Department representative would make contact with a representative of the facility to be notified of the reasonable health protection procedures. The Department does not desire to preclude being accompanied by a facility representative during the inspection but also does not want to make this a mandatory requirement of an inspection.

In regards to reports, reports relative to an inspection would certainly be subject to a Freedom of Information Act request and thus would be therefore -- and thus would be available to anyone requesting it. Specifically though to an owner-operator, the Department would not be opposed to providing a copy of such a report to an individual on an individual request basis without requiring a written request but respectfully suggests that such an auto requirement relative to all site visits would not be an efficient use of State resources. We would not be opposed to such a

requirement but would suggest that a time period for such a notice be extended to 15 working days to allow for the transmittal of information from the field to the Department's main offices and the accurate development of any notice which might be required. And in addition we would think that if 15 days would be appropriate for Department notification, then 15 days instead of 10 would be appropriate for the answer back to the Department by the facility.

MS. LOZUK-LAWLESS: Thank you. Mr. Harrington, would you wait one minute. Could we go off the record.

(A discussion was held off the record.)

MS. LOZUK-LAWLESS: Back on the record. Dr. Flemal?

MR. FLEMAL: As regards the ability of the Department to expect -- inspect facilities, it would be my assumption that the Department regularly does inspections in the field in other programs other than this. Am I correct in understanding that?

MR. GOETSCH: Yes.

MR. FLEMAL: What kinds of inspections, for

example, would Department personnel undertake under current programs?

MR. GOETSCH: Just in the programs that I'm involved with, we make annual inspections in agrichemical facilities. Retail agrichemical facilities inspect their containment structures. In our nursery programs that I mentioned, we inspect all the State -- all the nurseries around the State looking for disease, disease plants or insects, pests, those types of things. In other programs that I'm not that directly associated with, our fertilizer inspectors go to the same retail facilities to take samples of fertilizer. Our feed inspectors take samples of -- or collect samples for analysis so we -- probably just about every regulatory program has those kinds of either annual or semiannual inspections.

MR. FLEMAL: So would it be fair to say it's not particularly a surprise for someone in the agriculture business to be visited now and then by somebody from your Department?

MR. BORUFF: I think not all of this -- I was going to comment, the -- we have a couple of programs that pertain closely to animal health

where we have veterinarians and field staff may visit farms for disease control measures. When they make these visits they work with the producer ahead of time to know when the visit will occur, also take into account bio-security measures to make sure disease control is maintained. This would be a little bit of a deviation though in many of our programs because we'd be dealing with producers as opposed to retail or wholesale businesses, but in all cases here again we would be conscious of their scheduling and their particular needs.

MS. LOZUK-LAWLESS: Mr. Harrington?

MR. HARRINGTON: Just a follow-up on that. Would the Department have any problem with the requirement that the owner or manager be notified at the commencement of the inspection, be given the opportunity to accompany the inspector rather than a requirement that the inspector be accompanied?

MR. BORUFF: I don't -- offhand I don't think that that would pose a problem.

MR. HARRINGTON: Thank you.

MS. LOZUK-LAWLESS: Thank you, Mr. Harrington. Are there any questions of anyone in the audience

that they would like to ask the Department of Agriculture? Any questions at this time? Okay.

MR. MARLIN: In regard to that last answer, are you saying that you have no need ever to have a surprise inspection or inspection where the party is not given time to correct any obvious problems before your inspector arrives?

MR. BORUFF: Yeah, I interpreted the question to be one of whether or not we had a problem or a concern with the owner or operator accompanying us on that and certainly we wouldn't. If we're there to make an inspection, we have no concern with them being with us on that inspection. At least that's the way that I interpreted the question.

MR. HARRINGTON: That was the intent.

MR. BORUFF: Right, and just to clarify that, Warren brings up a good point, that if the owner-operator is given the choice and chooses not to go with us, they're certainly not required to go with us.

MS. LOZUK-LAWLESS: Thank you, Mr. Boruff. Any questions from anybody on the Board at this time? Okay, then what we'd like to do now is continue the hearing until Wednesday, which would be January

29th, at Galesburg and to note for the record, I believe, Mr. Harrington, we stopped at Question 54 of your prefiled questions?

MR. HARRINGTON: I believe so.

MS. LOZUK-LAWLESS: Yes, and if you have any questions as far as -- I'm sorry, this is Cindy --

MS. BUSHUR-HALLAM: Cindy Bushur-Hallam for the Department of Natural Resources, and Ross and Hardies, Harrington, you said that you were going to present some proposed changes to the management plan, and I was just wondering when they intended to do that so the Agencies would have a chance to respond. Just give a time schedule.

MR. HARRINGTON: We hope to present based on what we've heard some testimony with proposed changes in written format by Wednesday and with a witness to follow in Mount Vernon so that there would be some opportunity beforehand to see it before the witness testified.

MS. LOZUK-LAWLESS: Thank you, Mr. Harrington. If anyone has any questions about where the other hearings will be held or anything like that, we have some maps that are available on the table in the back of the room, and thank you very much.

MR. FLEMAL: Thank you all.

MS. MANNING: Thank you.

(The hearing was adjourned at 4:01 p.m.)

ILLINOIS POLLUTION CONTROL BOARD

| | | |
|---|---|---|
| In the Matter of: Livestock Waste Regulations, 35 Ill. Adm. Code 506, | ) NO. R97-015<br>)<br>) DeKalb, Illinois<br>) January 27, 1997 |

I, Carrie L. Vaske, hereby certify that I am a Certified Shorthand Reporter of the State of Illinois; that I am the one who by order and at the direction of the Hearing Officer, Audrey Lozuk-Lawless, reported in shorthand the proceedings had or required to be kept in the above-entitled case; and that the above and foregoing is a full, true and complete transcript of my said shorthand notes so taken.

Dated at Ashton, Illinois, this 29th day of January, 1997.

Carrie L. Vaske
Registered Professional Reporter
Certified Shorthand Reporter
Illinois License No. 084-003845
8991 South Prairie Road
Ashton, Illinois 61006