BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

BYRON SANDBERG, Petitioner, vs. CITY OF KANKAKEE, ILLINOIS, THE CITY OF KANKAKEE, ILLINOIS CITY COUNCIL, TOWN AND COUNTRY UTILITIES, INC., and KANKAKEE REGIONAL LANDFILL, L.L.C., Respondents.	Case No. PCB 04-33
WASTE MANAGEMENT OF ILLINOIS, INC., Petitioner, vs. THE CITY OF KANKAKEE, ILLINOIS CITY COUNCIL, TOWN AND COUNTRY UTILITIES, INC., and KANKAKEE REGIONAL LANDFILL, L.L.C., Respondents.	Case No. PCB 04-34
COUNTY OF KANKAKEE, ILLINOIS and EDWARD D. SMITH, KANKAKEE COUNTY STATE'S ATTORNEY, Petitioners, vs. CITY OF KANKAKEE, ILLINOIS, THE CITY OF KANKAKEE, ILLINOIS CITY COUNCIL, TOWN AND COUNTRY UTILITIES, INC., and KANKAKEE REGIONAL LANDFILL, L.L.C., Respondents.	Case No. PCB 04-35

PETITIONERS' MOTION TO SUPPLEMENT RECORD

NOW COME Petitioners, COUNTY OF KANKAKEE and EDWARD D. SMITH, and as and for their Motion to Supplement Record, state as follows:

1. Waste Management, Illinois, Inc. has previously filed an application seeking siting approval for an expansion of its existing facility located in Kankakee County, Illinois, which is the subject of a pending siting hearing.

2. On January 12, 2004, the local siting hearings began to determine if Waste Management's application should be approved.

3. At the hearing, George Mueller, who represents Town & Country in this proceeding, represented one of the objectors, Mr. Merlin Carlock.

4. On January 15, 2004, George Mueller called Charles Norris, a professional geologist, to testify.

5. During his testimony, Mr. Norris stated that he had reviewed the testimony that Mr. Schuh provided in Town & Country II on behalf of the County of Kankakee in June of 2003. (Waste Management, 1/15/04 Tr. Vol. IX, pp. 24, 53, 54, 63, 102-03).

6. Based on his review of Mr. Schuh's testimony, Mr. Norris agreed wholeheartedly with Mr. Shuh's testimony and opinion that sensitivity analyses must be presented in a landfill siting application. (Waste Management, 1/15/04 Tr. Vol. IX, pp. 38, 51-52, 85).

7. In fact, Mr. Norris repeatedly stated that Mr. Schuh's testimony was "absolutely on the mark." (Waste Management, 1/15/04 Tr. Vol. IX, pp. 52, 85).

8. Mr. Norris further elaborated on his opinion and stated:

> I agree with Mr. Shue [sic] not only on the issue of sensitivity runs with the groundwater impact assessment, but with the inclusion of all data, everything known, I think it is inappropriate to the point of being unconscionable for someone at any aspect of these kinds of siting hearings to be asking the siting authority just to trust me, I've looked at the date and its fine. That data, all of that information has got to be out on the table, available for full review, not just after the hearings, but before the hearings

where all interested parties can have the opportunity to look at them.

(Waste Management, 1/15/04 Tr. Vol. IX, pp. 51-52).

9. Mr. Norris' opinions clearly relate to the proceeding at issue in this case and specifically support Mr. Schuh's conclusion that T&C's application did not contain adequate information to establish that the facility was designed and located to protect the public, health, safety and welfare.

10. Such testimony is directly relevant to this case, particularly since the witness providing the testimony was presented by T&C's own attorney.

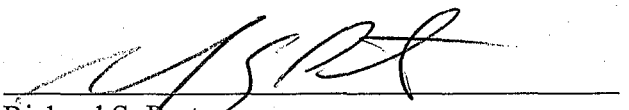
11. Because the testimony of Mr. Norris would clearly be helpful to the decisionmakers in this proceeding, Petitioners request that this Board supplement the record with Mr. Norris' testimony from the January 15, 2004 proceeding, which is attached hereto and incorporated herein.

WHEREFORE, Petitioners, COUNTY OF KANKAKEE and EDWARD D. SMITH, STATE'S ATTORNEY OF KANKAKEE COUNTY, request that this Board grant their Motion to Supplement the Record.

Dated: January 19, 2004

Respectfully submitted,
EDWARD D. SMITH KANKAKEE COUNTY STATE'S ATTORNEY AND THE COUNTY OF KANKAKEE

By: HINSHAW & CULBERTSON



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One of Its Attorneys

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AFFIDAVIT OF SERVICE

The undersigned, pursuant to the provisions of Section 1-109 of the Illinois Code of Civil Procedure, hereby under penalty of perjury under the laws of the United States of America, certifies that on January 19, 2004, a copy of the foregoing was served upon:

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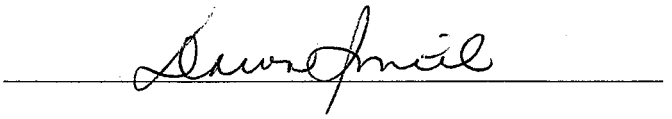
By depositing a copy thereof, enclosed in an envelope in the U.S. Mail at Rockford, Illinois, before the hour of 5:00 P.M., addressed as above.



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STATE OF ILLINOIS)
) SS.
COUNTY OF KANKAKEE)

IN THE MATTER OF)
)
APPLICATION BY WASTE MANAGEMENT,)
ILLINOIS, INC., A DELAWARE CORPORATION,)
FOR APPROVAL OF THE SITE LOCATION FOR)
AN EXPANSION OF THE KANKAKEE LANDFILL.)

VOLUME IX

REPORT OF PROCEEDINGS had during the public hearing before John McCarthy, Hearing Officer, at the Quality Inn, 800 North Kinzie Avenue, Bradley, Illinois, on the 15th day of January, 2004, at 8:45 a.m.

KANKAKEE COUNTY REGIONAL
PLANNING BOARD MEMBERS PRESENT:

Loretto Cowhig;
John Meyer, Jr.;
Ralph Paarlberg;
Curt Saindon;
Jim Tripp;
George Washington, Jr.

KANKAKEE COUNTY BOARD
MEMBERS PRESENT:

Ann Bernard;
Ralph Marcotte, Jr.;
Leonard Martin;
Ed Meents;
Robert Scholl;
Leo Whitten;
Francis Jackson;
William Olthoff.

PRESENT FROM THE PLAN DEPARTMENT:

Mr. Michael VanMill, Planning Director;
Ms. Donna Shehane, Solid Waste Coordinator.

APPEARANCES:

MR. DONALD MORAN,
Appeared on behalf of Waste Management, Applicant;

MR. RICHARD PORTER,
Appeared on behalf of the Kankakee County Staff;

MS. ELIZABETH S. HARVEY,
Special Assistant State's Attorney,
Appeared on behalf of the Kankakee County Regional Planning Commission and the Kankakee County Board;

MR. EDWARD SMITH,
Kankakee County State's Attorney,
Appeared on behalf of the Kankakee County Regional Planning Commission;

MR. L. PATRICK POWER,
Appeared on behalf of the City of Kankakee;

MR. GEORGE MUELLER,
Appeared on behalf of Mr. Merlin Karlock;

MR. DAVID FLYNN,
Appeared on behalf of Mr. Michael Watson;

MR. KEITH RUNYON, Individually;

MR. DARREL BRUCK, Individually;

VOLUME IX

I N D E X

HEARING OFFICER: Let's reconvene the public hearing. It's about a quarter to 9:00 or so.

Mr. Moran, you may call your next witness.

MR. MORAN: Thank you, Mr. Hearing Officer.

HEARING OFFICER: Would you swear the witness, please?

(Witness sworn.)

HEARING OFFICER: You may proceed.

MR. MORAN: Thank you.

WHEREUPON:

CHRISTOPHER E. RUBAK, P.E.,

direct testimony and his cross-examination are already part of this record and do not need to be repeated.

HEARING OFFICER: That's correct.

BY MR. MUELLER:

Q. Mr. Norris, have you had opportunity to do some further review of this application?

A. Yes, I have.

Q. And have you had opportunity to do some further review of the applicant's operating record?

A. Yes, I have.

Q. And have you heard the supplemental

testimony and cross-examination of Joan Underwood in support of the application?

A. Yes, I have.

Q. Based upon those things, do you have anything to add to the testimony that you previously gave?

A. Yes, I do have some observations.

Q. If you would proceed, please?

A. One of the observations that I think needs to be made and considered is the fact that this application is, with the exception of some bookkeeping changes, exactly the same application that was submitted a year ago. At the hearings a year ago, there were a number of problems that were identified, a number of issues that were raised that the applicant has chosen to simply ignore.

One of those areas is unshared information by the applicant. There are four quarters of head data in the expansion area that were not included in the application and have not been shared with the public for review. There are four quarters of water chemistry from the expansion area that have not been

shared by the applicant with this application and then made available for the public to review. The water chemistry data for all parameters have not been shared with the public for public review and a critical look. The applicant's interpretation of the water table map, a critical element, has not been shared with the public or the county for its review in this application. Model runs that would test the sensitivity of the calculations upon which Ms. Underwood's faith in the public protection of the public health, safety and welfare have not been included in this application and made available for public review.

This kind of information would offer a significant improvement, a significant advance in the ability to interpret what is actually going on, what the conditions are under the expansion area and allow a meaningful comparison of the expansion area to the existing area where there are these kinds of data.

The performance of the existing landfill is

still looked at in basically the same presentation -- not basically -- exactly the same presentation that

it was a year ago in spite of the fact that there have been actions taken by the State IEPA on some of the elements in Table 2-3. And in fact, there's been a remedial plan that has been caused to be put into effect relative to contamination from the existing site.

Q. Let me interrupt you for a second, Chuck.

Have you had an opportunity to review the testimony of Jeffrey Shue, the County's consultant from Patrick Engineering, at the Town and Country hearings?

MR. PORTER: Objection, irrelevant.

HEARING OFFICER: Mr. Mueller?

MR. MUELLER: I'm just asking if he reviewed it. We'll find out if it's relevant when he opines on it.

HEARING OFFICER: Overruled.

BY THE WITNESS:

A. Yes, I have had a chance to read that testimony.

Q. And specifically, have you had an opportunity to review the portions of his testimony that identified shortcomings by way of not including

certain information in that application?

A. Yes, I do recall those parts of his testimony.

MR. PORTER: Same objection.

HEARING OFFICER: Same ruling.

BY MR. MUELLER:

Q. Mr. Norris, for example, Mr. Shue, I believe, opined that the absence of sensitivity

analyses with the application, in his opinion, rendered the application so incomplete as to make it impossible to render a judgment on Criterion 2. Do you recall reading that?

A. Yes.

Q. And with regard to your comments about what is not included in this refiled application, I'd ask you to keep Mr. Shue's comments in mind and tell me whether you agree with the position that the County has previously expressed in regard to things like the necessity of sensitivity analyses.

With that, please proceed.

A. In considering the information that is provided in the application in Table 2-3, I would

encourage the County to note the careful use of language in the rationalization or explaining away the deterioration of groundwater quality around the old landfill. Statements like, quote, not confirmed increases when compared to final AGQS's, end of quote.

One of the things that is observable in the review of the operating record when it is looked at carefully is the change in the water quality standards or the applicable groundwater quality standards that the operator was able to get approved by the State that made a lot of these increases disappear, if you will; not that the water quality didn't change, not that the water quality didn't deteriorate with time, but only that it now doesn't count in terms of not meeting that standard.

Geologically -- hydrogeologically, this was in large part accomplished by the assertion that there was atypical channelized flow in the bedrock at

this site; and, therefore, the normal approach of using up-gradient wells as a comparison for water quality was done away with, and instead, individual

wells were just compared to themselves. And then a different time frame was taken, a time frame after the deterioration started, to redefine what normal is. This is attributed and dismissed as being a natural variation.

When you're looking at this statement in these documents or in this table of when compared to final AGQS, that's a red flag for you. That's we changed the playing field and now it's no longer an increase.

Another recurring theme that's used to explain away or rationalize is the suggestion that at

some point in time, the purging and sampling method no longer was adequate and that the changes are due to a faulty purging and sampling method or a faulty laboratory method that was fine for a number of years but somehow has suddenly become inadequate and so we need to rechange the standard or find a different way of monitoring or analyzing so that we no longer have a problem.

The statement not attributable to landfill, or more specifically, as used in the text, not due to

leachate release from the facility -- A place where that language is used is on page 225 -- there's an important difference between not attributable to the landfill and not attributable to a leachate release. Discharges from that existing facility have contaminated groundwater around the existing facility. And that is just a simple statement. Okay?

Somewhat more detail can be offered in Karlock 15, the second page of that document, from the previous record. Dismissing the groundwater contamination as being caused by a gas release as opposed to a leachate release and that that in some way suggests that that groundwater contamination shouldn't count just simply doesn't fly. It doesn't negate the fact that the existing facility caused that damage. It doesn't actually fit the data itself.

The data itself suggests that at least some of those constituents could not have been caused by a gas release, the concentrations that are observed. And ultimately, it apparently hasn't flown with the

IEPA in that they have instituted a remedial action and that the applicant is having to do some remediation. Now, unfortunately, I haven't been able to review that document. It isn't in the operating record at the County Clerk's office, but I was glad to see that in this case, the Illinois Environmental Protection Agency did not accept the premise that gas contamination of groundwater, were that the cause, doesn't mean that there isn't a problem.

Second, this approach of it's not caused by a leachate release doesn't assess responsibility for non-leachate impacts that are caused by the landfill on the hydrogeology, either physical or chemical.

Unaddressed are the inconsistencies in the geologic interpretations in the application. The most -- One of these inconsistencies is the concept that the thin sands in the unconsolidated sediments are interpreted by the applicant as being too limited in extent to be pathways of migration. That's most obviously refuted by the existing facility, where we at least have some data to work with, and by the sand stringer there that has had to be targeted and

drilled to be -- to allow the gas to dissipate to the atmosphere. That sand is extensive enough that this is causing migration of gas away from the existing facility. It is extensive enough that it can be mapped and has been mapped and has been deliberately drilled to deal with the problem of the migrating gas.

In looking at and reviewing, again, the operating record, and the painstaking review of that record, shows that there has never been a suggestion at any time that this gas is anything but landfill

gas. All of the engineering reports, all of the geologic reports in dealing with it and installing the wells to dissipate the gas to the surface have universally described this as being gas migrating from the landfill. Only in these hearings in the testimony of Mr. Johnson has there been ever any suggestion that there might be some other non-landfill cause for this gas.

I would urge you to go with what the record shows and what everyone who has worked on that site and recognized that a sand stringer at the existing

facility has, in fact, transported gas outside the boundaries of the facility and that the geology around the expansion area is sufficiently similar that the same can happen there, and that possibility must be dealt with in the design and operation of the new facility.

We still have an insistence that the glacial sediments are an effective barrier to vertical migration. The gas in that stringer at the existing facility could not have gotten there if the glacial sediments are as represented in this application. Modern agricultural chemicals and bomb-generated radionuclides would not be in the bedrock.

Water, if the fine grain sediments performed hydrologically the way they are represented as performing in the application, the interpretation is not consistent with either the site data or the regional data. The site data suggests that water moves through at least 50 times or more faster and at higher volumes. The regional data says it could be as much as 170 times greater. These were issues that

were raised in the previous hearings that were unaddressed and are still unaddressed.

The channelized flow under the existing facility has been explicitly acknowledged by the applicant's consultants and used, in particular, to change the methodologies for calculating the standards and allowing them to be revised upward.

The proposed monitoring system monitors only the upper 15 feet of the bedrock in spite of well bore and stratigraphic evidence that dissolution features exist at greater depth and that there is a gradient downward toward such features. Monitoring the upper 15 feet and ignoring that downward gradient

ends up being a situation where most of the water that is traveling through and leaving the upper 15 feet is not being monitored.

I've put together a diagram to illustrate that point.

George, did you want to --

Q. Chuck, these have been handed out, and the diagram is Karlock Exhibit D, as in David, and your calculations is Karlock Exhibit E.

A. All right.

Karlock D shows a schematic of the 15 feet that is considered the upper part of the bedrock aquifer. It is the part that's going to be monitored. Okay? Essentially, the monitoring will occur around the north, south and east sides. And if you look at the area that is involved in that perimeter around the north, east and south sides, and a thickness of 15 feet, that area is about 3.4 acres that water can move through. We know the gradient in there. We know the hydraulic conductivity. So we can calculate the volume of water that moves through that perimeter area.

We have a downward gradient, which means water moves down out of that zone that is being -- that is being monitored. The same calculation can be made for that. The volume --

Q. Can I interrupt you for a minute? Just for people who are looking at the exhibit, does the rectangular box on Exhibit D, with dimensions 5,000 feet by 2,500 feet, represent the top of the dolomite aquifer underneath the site?

A. Yes.

Q. And do the sides of that box, with a dimension of 15 feet in height, represent the perimeter of that area, which is the zone being monitored?

A. Yes. That's the depth of the monitoring wells that are proposed in this application at present.

Q. Sorry for the interruption, but I just thought we'd explain that.

HEARING OFFICER: Mr. Norris -- We have a --

Yes, sir?

MR. MEYER: Could we see some of that? There's not that many of us.

HEARING OFFICER: Yeah.

If you could provide them with a copy.

MR. MEYER: We could even share.

MR. MUELLER: I've got one extra.

HEARING OFFICER: Could you give your name, sir?

MR. MEYER: John Meyer, RPC.

BY THE WITNESS:

A. The base flow from the upper monitored zone

occurs over an area of 287 acres approximately with, again, a hydraulic conductivity and a gradient. Now, the hydraulic conductivity of the zone underneath is 80 percent of the hydraulic conductivity of the monitored zone. So it's a little bit less. That data comes from the applicant's data.

The gradient in the lower zone varies significantly. In some areas the vertical gradient, the downward gradient, is greater than the horizontal gradients. In other places, it's about 10 percent of the horizontal gradients.

Q. Chuck, when you say lower zone here, are you referring now for the purposes of this particular

part of your presentation to the dolomite aquifer?

A. The dolomite aquifer under the portion of the dolomite aquifer, the 15 feet that's being monitored.

Q. Okay.

A. The rest of the dolomite aquifer.

The gradient, to minimize this calculation, to use the buzz word conservative, I went ahead and used the 10 percent vertical gradient rather than the

higher values. And the area of flow is 83 times the area of flow around the perimeter. The result is that you can demonstrate that the amount of flow going out the bottom of that aquifer -- not out the bottom of the aquifer. The amount of flow going downward in the aquifer below the zone that's being monitored is 6.7 times the flow that's going out through the monitored perimeter.

87 percent of the flow penetrates below the monitoring zone. 87 particles out of a hundred that move through that aquifer under that facility leave -- 87 out of a hundred particles that move through the upper zone that's being monitored leave that zone not through the intervals being monitored, but through pathways that are below the zone being monitored. This is not in any way addressed in this application.

There are still inconsistencies between the engineering and the geology and the hydrogeology, inconsistencies or inadequacies. The most glaring one, I think, is the treatment of the magnitude and the degree of the inward gradient.

At various places, the head of the

landfill, the head at the base of the landfill liner is used in calculations as being the elevation of the base of the liner. The head at the base of the liner in some places is considered -- and for some purposes is considered the head of the water in the bedrock. The head on the flanks of the landfill in some calculations is considered equivalent to the water table.

The inward gradient is described as being controlled by the water table for some applications and being controlled by the heads in the bedrock in other applications. At some point in the application and the testimony as justification for some kind of a conclusion, these various things have been used.

There's been 13 months that have gone by where some of this could have been resolved. None of

it has been.

The groundwater impact assessment modeling, the modeling that was relied upon by Ms. Underwood as an underpinning of her belief that the site is protective of the public health, safety and welfare,

there are severe problems with that modeling, some of which were brought out in cross-examination but some of which still are out there.

There was, as I indicated, just a single run. Sensitivity data are an absolute must to evaluate the meaning of any kind of modeling. Mr. Shue pointed this out at the City hearings on a recent landfill hearing on another facility. His observations relative to that are absolutely pertinent to the missing information from this one. The run that is included in this model, although it's called a base case, is not a base case. A base case has to have its foundation on site data and engineering data generated in the application or materials that are known to exist. The run in this application was based on none of these. It's an artificial construct.

Site flow is in three dimensions. This model considered only one dimension of flow. The inward gradient is controlled by the heads and the sediments adjacent to the landfill. The calculations that are used use the heads in the underlying

aquifer, the bedrock aquifer. The liners are of known dimensions and properties, and these were not used. The properties and liners are based on arbitrary and largely meaningless calculations found in Appendix E-4-4, and it's a calculation that's

directly in conflict with the calculation in Appendix E-4-3.

The use -- Well, the run is also not a conservative case. A conservative case in the first place must be based on reality, not arbitrary, unsupported numbers, and this calculation is not. It is not even based on a logical and expected direction of flow. This calculation that is in the application is a flow over a period of over a thousand years of vertically upward flow into the landfill.

As was pointed out, and I would like to emphasize today, the applicant's own help model that was relied upon by the applicant for the design of leachate management facilities -- That's a standard program that is appropriately used for exactly those kinds of things -- shows a leachate head rise in the landfill that is .6 feet per decade. If there were

an inward gradient from the bedrock into the landfill, as represented by Ms. Underwood and in the calculation in the application, that gradient would reverse itself and become an outward gradient and a downward gradient within 200 years. That was not considered. It was not something that was evaluated in this application. It is a major inconsistency.

But in a way, the bigger problem with respect to that is the concept that a few defects per acre in this landfill is in some way going to create an upward gradient from the uppermost aquifer 19 feet below it and the base of the landfill. That simply is not, cannot be the case. It is readily refutable by just a consideration of basic flow according to Darcy's Law. And Karlock Exhibit E is a calculation to demonstrate that.

Ms. Underwood chose to consider and

calculate something that she called an equivalent conductivity through the entire liner system. It's a calculation that can be made, but it's not the calculation that's important to understand what's happened, because we do know what the characteristics

of that liner are. We don't have to go to some kind of an average number. Groundwater flow is not controlled by average numbers. It's controlled by the absolute numbers that are there. And when you have those numbers available, you look at what they tell you.

Now, with this calculation, I considered a -- What I wanted to know was if I have one foot of leachate inside the geomembrane, what kind of head outside that geomembrane do I have to have to push water through it at a particular rate? All right? I'm using -- I chose a half a gallon per day per acre. Now, that's about half the water that Ms. Underwood chose to make her calculation on. It would take less pressure outside the liner to push a half a gallon through than it would take to push a gallon through.

We know you convert that half a gallon per day per acre to a what's called a specific flux, the number -- the cubic feet that crosses the square footage per day. And that comes out to a small number, a very small number, one and a half

one-millionths of a cubic foot per square foot goes through that. Okay?

Simple Darcy Law says that the Q in this case is equal to the hydraulic conductivity times the gradient. We know the hydraulic conductivity of the

liner. The geomembrane, not the whole liner. We don't need to consider the whole liner for this calculation. Let's find out what the pressure is, what the head is outside that plastic layer. All right?

The hydraulic conductivity of that liner is used in the help model as 2 times 10 to the minus 13 centimeters per second. If you convert that to the same units of feet per day, you can then calculate what I is. And from what the gradient is, we know that the gradient is equal to the change in head divided by the change in thickness. The thickness of that is only .005 feet. The head change that has to occur across that liner in order to put a half a

gallon a day into the landfill is 13 and a half feet of differential water head against that liner.

We know that the typical -- using the

average head of one foot of leachate on top of the liner says that the liner -- the leachate head inside on the inside surface of the liner is 621 feet. The head on the outside of the liner has to be 13.5 feet above that, which makes the head outside the liner 634 and a half feet. 634 and a half feet is above the head of the dolomite anywhere it's been measured.

There is, in spite of the inward gradient at the liner -- the geomembrane liner -- Yes, water flows in at that point, but the gradient past that liner through the composite clay liner and through all the sediments is down into the aquifer. It is not from that point on up into the landfill.

The calculation absolutely should have been done with a downward gradient, and that should have been recognized and recognizable by any hydrogeologist that is considering this site.

There are going to be changes to the existing flow system. That at least has been acknowledged partially in yesterday's testimony by Ms. Underwood in that she did acknowledge that there would be some decrease in the head of the uppermost

aquifer in response to building this big, impermeable landfill on top of it. You're going to cut down the available infiltration from above, and that can only have an effect of decreasing the heads, decreasing that mound that's in the bedrock under the landfill. Without that infiltration, that high decreases and potentially disappears.

In addition, Ms. Underwood pointed out that surface water monitoring features around the sides and the ponds become sources of infiltrating water that tend to raise the water heads in at least the glacial sediments and perhaps the underlying bedrock, so that the areas right now that are high heads in the bedrock will be lowered. Those that are the low areas where the ponds are sitting will tend to be raised. The effect is going to be to change the directions of flow. And without knowing where those -- what those changes consist of and how big they are, you can't pretend to know where you should put your monitoring wells.

The existing placement of the monitoring wells show large gaps on the eastern side of the

landfill. The changes that will occur will tend to minimize the north flow, minimize the south flow, allow a more typical regional flow to the east across the area where there are the fewest monitoring wells proposed. The monitoring program is designed on the existing flow system, not the flow system that will develop. And there has been no attempt in the last 13 months to quantify what those changes are going to be and to modify the design to fit those changes.

Any and all of these issues can and should have been addressed with a standard three-dimensional flow model of the site that can be used to realistically address -- can also be used to realistically address the contaminant migration from the facility. But regardless of the contaminant transport model that's used, a three-dimensional flow model has to be used to characterize the post-installation, the post-construction condition because that is what has to be monitored.

One of the issues that's absolutely unaddressed is flow in the shallow system and what this landfill is going to mean to that. If you put a

500-foot barrier to flow that goes some 20 feet or more below the water table surface, you are going to affect the flow in those shallow sediments. To the extent that the shallow water table is in the higher elevations, it's to flow from the west toward the east, and the shallow sediments are going to be interrupted. It's going to have to find its way under or around that landfill. The result is it is going to be -- it is going to tend to dam up and back up behind the landfill, and you create higher water table heads, higher shallow surficial sediment heads, upgrade into the landfill; and correspondingly, they will be somewhat lower below the landfill.

The lower heads below that landfill are probably not going to be a problem, but higher heads upgrading in the landfill may be. You have residences up there. Those residences, to the extent that they, for instance, rely on septic systems, if the water tables rise excessively, you can impact a septic system and its function. You can create water problems in basements where they didn't exist before.

These are impacts that this facility can be

expected to have that should be explored with flow modeling. They are impacts that are absolutely -- potential impacts that are absolutely unaffected by any release from this landfill, but they are potential impacts that can have a negative effect on the public welfare. And it is unacceptable that these kinds of studies, readily, routinely available

and can be done, have not been done by this applicant.

The monitoring program is not going to be able to protect the public. If this facility is built successfully as designed, there will be no way with the existing monitoring system to determine whether or not there's a problem with it until decades after the pumps have been shut off. The -- If you have -- The current plan is that -- The current calculations show that about 19 gallons per acre per day -- or per year -- per day infiltrate -- No, it's 19 per year, I think. Let me look and make sure I don't --

From Appendix K-1-1, the calculated infiltration through the cover is 18.1 gallons per

acre per day, a flow through the bottom that is right now perhaps a half a gallon per acre per day. If the upper liner -- the cover isn't working, if that number triples, if the base liner is ten-fold worse, if it's letting material water in from the bottom ten times as great, those numbers are still very manageable leachate handling numbers and they set off right now no flags. There is no required response on the part of the operator to changes in the projected leachate calculations that would cause the operator to look for what is causing leachate production beyond what was originally calculated.

An element of the monitoring system on an inward gradient landfill should include performance requirements with respect to leachate production. If the leachate production is ten times what was modeled, that should be a flag that the operator has to explain. It should be looked at on a cell-by-cell basis, not on a landfill-wide basis, because if you have a ten-fold increase in one of a dozen cells, averaging that over a dozen cells doesn't indicate that there's a problem. But if you've got a ten-fold

increase in one cell, it says that cell is not performing right, and you should have to go in and find out why and do something at that point, not wait decades before it actually becomes a problem. You have the inherent ability to preemptively find a problem and correct it. But the monitoring and performance requirements of this landfill, as proposed to be operated, will not include those

elements.

The perimeter monitoring for gas at this landfill does not go below the saturated zone, below the water table. We know from the existing facility that gas can migrate through sands below the water table. The gas monitoring system for this landfill should include probes that go to the base of the landfill whether or not that's below the water table. Right now they go to the base of the landfill only if the water table happens to be that low. These are two changes that have occurred and have been implemented and integrated into other waste management facilities or at least an other waste management facility. They should be included in this

facility.

And finally, this facility should include, as part of its monitoring system, piezometers within the waste, something that tells you whether or not leachate is building up in those cells in the landfill. And the reason you need those is it is possible to plug your leachate collection blanket. If that leachate collection blanket doesn't work, then leachate is not getting into your collection system, you're not producing leachate, that can actually be taken as a sign that leachate production is done and everything is fine with the landfill.

But if that blanket has become plugged and the leachate is building up in the landfill, you're completely misinterpreting why you're not producing as much leachate. Verification of no produced leachate with the fact that there is no accumulating leachate in the landfill is the only way to get around that misinterpretation. And that should be part of the landfill monitoring and performance.

Q. Mr. Norris, Ms. Underwood opined yesterday that the inclusion of sensitivity analyses in an

application -- And we're talking about sensitivity analyses of the groundwater impact assessment. She opined that the inclusion of those is really more appropriately done at the permitting stage.

Mr. Shue, the County's consultant, opined at the Town and Country hearings that the inclusion of those analyses is essential to make determination at the siting phase as to whether or not the facility is really protective of the public health, safety and welfare.

Who do you agree with?

A. I agree with Mr. Shue not only on the issue of sensitivity runs with the groundwater impact assessment, but with the inclusion of all data, everything known, I think it is inappropriate to the point of being unconscionable for someone at any aspect of these kinds of siting hearings to be asking the siting authority just to trust me, I've looked at that data and it's fine. That data, all of that information has got to be out on the table, available for full review, not just after the hearings, but before the hearings where all interested parties can

have the opportunity to look at them.

Q. Mr. Norris, Ms. Underwood also opined yesterday that the pressure gradient in the groundwater underneath and in contact with the bottom of the liner in an inward gradient situation will cause a reversal of the existing downward gradient into an upward gradient for tens of feet.

Mr. Shue opined at the Town and Country

hearings -- And, again, he's the County's consultant -- that construction of a relatively impermeable liner will not reverse the downward gradient below that liner.

Who is correct?

A. Well, as demonstrative of the calculations that I made in Karlock E, Mr. Shue is absolutely on the mark, and Ms. Underwood is simply badly mistaken.

Q. Anything else to add, Mr. Norris?

A. No.

MR. MUELLER: Thank you.

HEARING OFFICER: Mr. Moran?

MR. MORAN: Thank you, Mr. Hearing Officer.

CROSS-EXAMINATION

BY MR. MORAN:

Q. Mr. Norris, these statements you've made today are essentially the same concerns you expressed during the first set of hearings on this application; isn't that correct?

A. Many of them are. The calculation to demonstrate the invalidity of the reversal of gradient is certainly new. The two Karlock exhibits are quantification of new materials or quantification of previous concerns, yes.

Q. Well, the new information you were asked about was the testimony Mr. Shue gave at the Town and Country proceeding, isn't that correct? Mr. Mueller didn't ask you at the last set of hearings about Mr. Shue's testimony at Town and Country, did he?

A. No. That testimony hadn't occurred yet, I don't believe.

Q. And you had an opportunity to review that testimony; isn't that correct?

A. Yes, I did read it.

Q. And I believe last time we were here, I

asked you about whether you had reviewed any of the application, any part of the application filed with the City of Kankakee with respect to the Town and Country application. And you said you hadn't reviewed any of it; isn't that correct?

A. That's correct.

Q. So since that date, you've now been instructed to review at least part of the testimony that was presented in that siting application proceeding; is that correct?

A. I was asked to review testimony that was offered in the Town and Country subsequent to our last hearings, yes.

Q. That's right. And Mr. Mueller asked to you do that, didn't he?

A. Yes, he did.

Q. And he asked you to review Mr. Shue's testimony, and that was the only part of that siting proceeding that you've reviewed; isn't that correct?

A. That's correct.

Q. Now, let's just step back for a moment and address the questions that you've looked at here

today. Now, last time you were here, you said that you were going to provide your observations, which I believe you'd characterize your testimony here today, and that you weren't offering an opinion that this application failed to meet Criterion 2; is that correct?

A. Yes.

Q. Is that still your position that all of the observations you've given here today do not add up to an opinion by you that this application does not meet Criterion 2; is that correct?

MR. MUELLER: I'm going to object. I think he's asked a compound question where he's stated something in two different ways. One is whether or not Mr. Norris has an opinion that the application doesn't meet the criterion, and the other one was whether or not Mr. Norris has an opinion that it's impossible to tell whether the application meets the criterion. I think Mr. Moran, in fairness, needs to carefully distinguish between those two.

HEARING OFFICER: You want to rephrase your question, Mr. Moran?

MR. MORAN: Certainly.
BY MR. MORAN:
Q. Mr. Norris, have your observations that you've given us here today amounted to a conclusion by you that this application does not meet Criterion 2?
A. That's a very precise question. And to be honest, I lost concentration halfway through it. I would ask to have it repeated. If you'd like to have it read back, I know you constructed it very carefully. I'm not asking you to rephrase it. I'm just asking to hear it again.
MR. MORAN: If the court reporter could read back my question?
(Record read as requested.)
BY THE WITNESS:
A. No. My observations today reflect the geologic and hydrogeologic problems with the existing application.
Q. So you are not testifying here today that this application does not meet Criterion 2; is that correct?

A. Yes. I no longer testify to that effect at hearings. I have come to the conclusion through the years that it is inappropriate for people, geologists, to make that determination one way or the other. It's really outside the venue of the science of geology. They can determine whether or not the information exists for a body to make that determination; but a determination of safety is not a geologic determination, it is a combination of policy and risk and other things that are non-geologic that

have to be factored into it. So I no longer make that determination.

Q. And when did you decide that you would no longer make a determination in reviewing a siting application that that application did not meet any of the criteria?

A. Well, I don't think I've ever considered any of the criteria except Criterion 2, but I would think it's been at least three, maybe four years since I've made such a determination.

Q. So the last time you recall having drawn a conclusion that a siting application did not meet

Criterion 2 was approximately three or four years ago?

A. I believe so.

Q. Now, addressing that issue, you have, in

fact, been asked by Mr. Mueller to review a number of siting applications; isn't that correct?

A. I have looked at a number of siting applications for Mr. Mueller and for other people.

Q. Well, I want to focus on those that Mr. Mueller has asked you to review.

MR. MUELLER: I'm going to object, Mr. McCarthy. This is repetitive and completely cumulative of previous cross-examination. Mr. Norris's background has been completely explored by both the County's attorney and Mr. Moran at past hearings and, in fact, is beyond the scope of today's direct since we didn't review his background any further, as that would have been cumulative and repetitive on my part.

HEARING OFFICER: Mr. Moran?

MR. MORAN: Well, in fact, there have been developments since the last hearing. There have been a number of issues raised, in fact, by Mr. Mueller's

questioning of Mr. Norris with regard to additional reviews he has performed of another siting application in this county. And I believe that I'm entitled to question him about what I consider to be his bias in reviewing these applications.

HEARING OFFICER: I'll allow it.

MR. MUELLER: Mr. McCarthy?

HEARING OFFICER: Yes.

MR. MUELLER: If he wants to limit his questions to what work Mr. Norris has done since he last testified, I think that's fair subject matter. But if we're just going to rehash what happened in 1993 and '95, that certainly is repetitive and cumulative.

HEARING OFFICER: Mr. Moran?

MR. MORAN: May I proceed?

HEARING OFFICER: You may.

MR. MORAN: Thank you.
HEARING OFFICER: The objection is overruled.
BY MR. MORAN:
Q. Mr. Mueller asked you on a number of occasions to review siting applications filed in various venues within this state; is that correct?

A. Yes, he has.
Q. And by my count, before this application that you've reviewed here today, he has asked you to review seven siting applications. Would that be an accurate number?
A. I don't have my resume with me, but I think it would certainly be a reasonable number.
Q. Well, just to refresh your recollection, last year when I asked you, you said there were six including the first application filed here.
A. Okay. Well, this application then would be No. 7.
Q. Well, no. I think since the last hearing, didn't you review a siting application in Rochelle that Mr. Mueller asked you to review?
A. Yes. I'm sorry. Rochelle would be seven. This would be eight.
Q. So this would be No. 8?
A. Yes.
Q. And in those seven siting applications that Mr. Mueller asked you to review, one of your observations in each of those seven siting

applications you reviewed was that the proposed monitoring for that facility was inadequate; is that correct?
MR. MUELLER: Mr. McCarthy, let the record show

my continuing objection to this line of questioning. I will not interrupt by objecting to every question.

HEARING OFFICER: Fine.

BY THE WITNESS:

A. Yes, I have always found room for improvement with the monitoring systems.

Q. And in fact, during the Rochelle hearings, you were asked about whether you had testified in prior siting applications at the request of Mr. Mueller; is that correct?

A. I would imagine.

Q. And in that hearing, you indicated that in those prior siting applications you reviewed, that you would have testified in each of those cases that the siting criteria were not met. Isn't that what you testified in Rochelle?

A. That I would have testified to that effect or that I did testify to that effect?

Q. That your testimony in Rochelle is when Mr. Mueller asked you to review a siting application, that in each of the cases prior to Rochelle that you had reviewed, that you would have testified that those siting applications did not satisfactory Criterion 2?

A. Yes. Were I wearing a hat where it was appropriate to make that determination, I believe that would have been my determination in each of those cases.

Q. And in at least two of those siting applications that you testified regarding your observations, that testimony was given since 1998; isn't that true?

A. Yes.

Q. Now, during the period during which Mr. Mueller was asking you to review siting applications, had he ever asked you to review the siting application that was submitted by Town and Country Utilities to the City of Kankakee?

A. No.

Q. And in that instance, Mr. Mueller was

representing the applicant; is that correct?

A. Yes.

Q. And I believe what you said a few moments ago was that he did ask you to review one portion of the testimony given in that proceeding, and that was testimony provided by Mr. Shue; is that correct?

A. Yes, the testimony, but not the application.

Q. Precisely.

And your review was of Mr. Shue's

testimony, in which Mr. Shue talked about sensitivity analyses that would be performed in conjunction with the groundwater impact assessment modeling done for purposes of that application; is that correct?

A. That was part of Mr. Shue's testimony, yes.

Q. Now, have you ever performed any groundwater impact assessment in connection with a permit application to the Illinois Environmental Protection Agency?

A. No. As I testified in the previous hearings here in response to that question, I have not.

Q. Do you know what the POLLUTE model is?

A. Yes.

Q. Is that a program which allows an analysis to be performed and a model to be run in connection with a permit application for a solid waste facility of the Illinois Environmental Protection Agency?

A. It is one that can be used, yes.

Q. Had you ever performed or prepared or run a POLLUTE model in connection with a permit application to the Illinois Environmental Protection Agency?

A. No. Again, as I believe I already testified a year ago, I have not.

Q. Do you know what a MIGRATE model is?

A. I have seen the program. I've heard about it. I have not used it.

Q. Have you ever prepared or run any sensitivity analyses in connection with a model presented in connection with a permit application to the Illinois Environmental Protection Agency?

A. No, I have not.

Q. Mr. Norris, you testified a little bit last

time about your observations and testimony provided

for a proposed landfill in Will County, Illinois, which was proposed by Waste Management of Illinois, Inc.

Do you recall that question and that testimony you gave during the last hearing?

A. I recall that we discussed some aspects of that, yes.

Q. And in that siting application, you, again, testified as you have here that the monitoring system proposed for that landfill was inadequate; is that correct?

MR. MUELLER: I'm going to object, Mr. McCarthy. Mr. Norris's testimony at Will County was extensively explored last time; and, in fact, Waste Management admitted into evidence exhibits which they believed impeached Mr. Norris's testimony with regard to that. And, therefore, he already -- he either has been impeached or he hasn't, but it should not be allowed to happen again.

HEARING OFFICER: Mr. Moran?

MR. MORAN: I'm just setting the groundwork for my next question.

HEARING OFFICER: It's overruled.

You may continue.

BY THE WITNESS:

A. I'm sorry. What was the question?

Q. Do you recall that I asked you last time regarding your testimony in the Will County siting application, that you had testified there that the proposed monitoring system was inadequate?

A. Yes. The design was essentially the same,

the geology was essentially the same as this site, and I believe my criticisms were essentially the same as well.

Q. And in that case, both the siting committee that considered your testimony and the Will County Board rejected that testimony; isn't that what I asked you and you acknowledged that fact?

MR. MUELLER: Again, I'm going to object. We're just repeating the past.

HEARING OFFICER: Overruled.

BY THE WITNESS:

A. Yes.

Q. Are you aware that that proposed facility

has been permitted and they anticipate breaking ground on that facility tomorrow?

A. No, I was unaware that they were breaking ground. I was aware it was in the final stages for approval, in part because of the negotiations and work that I did with Waste Management just a little over a year ago regarding changes to the monitoring program that incorporated exactly some of the changes I think Kankakee County should insist on.

Q. And we, indeed, covered your claim that somehow you were working in connection with Waste Management on the permitting of that facility; isn't that correct?

A. I don't know that it was so much working with Waste Management as perhaps working against Waste Management; but nonetheless, the changes that I proposed to monitoring program and protocols were incorporated in the final application to the State, I believe.

MR. MORAN: I have no further questions of this witness.

HEARING OFFICER: Thank you.

Mr. Flynn, any cross-examination of this witness?

MR. FLYNN: Just one question.

CROSS-EXAMINATION

BY MR. FLYNN:

Q. If I understand your testimony correctly, it's your opinion that there's insufficient data from a hydrogeological perspective to make a determination as to whether or not Criterion 2 has been met?

A. Yes, I believe that's the case. A combination of insufficient data and data that has been misdealt with.

MR. FLYNN: Thank you.

HEARING OFFICER: Mr. Power?

MR. POWER: No questions.

HEARING OFFICER: Mr. Runyon?

MR. RUNYON: Yes, I have a few questions.

CROSS-EXAMINATION

BY MR. RUNYON:

Q. Mr. Norris, were you here last night when Ms. Underwood was testifying?

A. Yes.

Q. And did you hear Ed Smith ask Ms. Underwood if, in fact, there were leaks through the system, that the monitoring wells would pick up those leaks?

A. Yes.

Q. Isn't it true that leachate tends to migrate in different patterns? For instance, leachate can migrate in a plumage, a plume-type pattern; is that correct?

A. Yes.

Q. Isn't it also correct that leachate can follow a migration path like a finger, straight out in a very narrow corridor?

A. A leachate release will move in a pattern that is controlled by the geology and the hydrogeology. If the flow path and the flow system is a large system and a fairly uniform system, then you get what is more of a traditional concept of a plume. If the geology and the hydrogeology is such that the flow path is a very discreet, contained system as in a thin sand lens, stringer, a fracture system, then the leachate can move and will move preferentially through that system more analogous, as

you suggested, to a finger. It's all controlled by the geology and the hydrogeology.

Q. Isn't it true that should the leachate migrate in one of those narrow finger patterns, let's

say, through the fractured bedrock or something like that, that could actually go right between the monitoring wells and never be detected?

A. It's well demonstrated in the literature and experience that the more heterogeneous the system you have, the more discreet the flow paths, the more difficult it is to detect monitoring. And yes, moving through a discreet fracture or a sand stringer that doesn't exist as a broad layer can cause a monitoring well to not detect leachate release that has moved past it. Yes.

Q. The computer modeling programs that have been referred to can have a lot of variation in output depending upon your input, can't they?

A. Absolutely.

Q. So if it's garbage in, it's garbage out?

A. That is a --

Q. Or trash in and trash out?

A. It's a standard axiom; and it's standard because it's true, yes. The outputs of a model are certainly no better than the value of the data and the choices of the input parameters that go into the model.

Q. So then the person running the program can certainly manipulate the outcome of that model; is that correct?

A. Yes, but I don't think there are very many professionals in this world that manipulate the outcome so much as they make bad or uninformed choices or they overlook things. I hesitate on the manipulate part because it kind of implies an antisocial aspect that I would like to think doesn't exist among professionals. But somebody can

manipulate a program, absolutely.

Q. That's all I wanted to know about that. Thank you.

Isn't it true that most of the modeling programs, however, assume a certain number of faults per acre in the liner system?

A. Well, the programs that were used in this

case, the HELP model and the POLLUTE model, do have standard assumptions to that effect. If you don't assume some kind of defect, for instance, in a liner, then all you have is the diffusion of some materials through that liner and you have no flow whatsoever. So you're going to be calculating flow through the liner, you can't have zero permeability. So some assumptions are made that there's at least a minimum kind of number of faults in the liner.

Q. So we can kind of compare this, a landfill with a liner like this, as a big bathtub with a baggie inside it?

A. That's a -- I mean, visually, I like that. I suppose you could consider it that way.

Q. And isn't it true that the those liners are highly susceptible to penetration through things like punctures, even if the wells don't break, that they can be punctured?

A. There are ways in which a liner can be damaged as a result of construction. Hopefully, you know, those are caught when they happen, but the answer to the question is yes.

Q. Isn't it also true that there are some chemical compounds that do penetrate the liner?

A. To my understanding, yes.

Q. Okay.

A. I should -- Penetrate, I think, may not be an optimum word there because it implies some kind of a break. The chemicals diffuse or move through the liner, but they don't penetrate it in the sense that they break it.

Q. Isn't it true that each year the scientific industrial community produces quite a number of new chemicals?

A. I think that's probably a fair general statement.

Q. Isn't it also true that ultimately, most of those chemicals will end up in a landfill eventually?

A. Again, just speaking as a lay person, I mean, it's not my area of expertise, but there certainly is that potential that they will end up there, yes.

Q. Isn't it true also that those chemicals can

create, if admixed inside landfill, a compound the

result of which we can't predict?

A. Well, that's getting a little too far afield even for me to comment on it as a lay person.

Q. Okay. Just a couple of other questions.

Do you recall me showing you this letter from Dr. Mehnert yesterday?

A. Yes.

Q. Do you recall the conclusion of that letter, what he said about the present expansion in terms of its hydrogeologic desirability?

A. Well, I don't have it in front of me, but --

Q. Would you like to refer to it?

A. The thrust, as I recall, is that he felt that there were less optimal conditions at this location than there would be in other areas of Kankakee.

Q. Do you recall on what basis he drew that conclusion?

A. He was looking at some state survey geologic mapping of Kankakee County.

Q. I just have one other question for you, and

it's really a question that that Byron Sandberg asked me to ask. And I'm not even certain I understand what I'm asking.

But I believe he gave you --

MR. RUNYON: And I don't recall, Mr. Hearing Officer, which exhibit of Sandberg's this was, whether it was 1 or 2 or what.

BY MR. RUNYON:

Q. But it refers to -- And maybe you'll recall

it -- to lineaments.

A. Yes.

Q. And Mr. Sandberg wanted to know what impact lineaments have on the proposed site.

A. If I could have that document to look at it, I think it would help.

Q. Sure.

A. The document is a number of pages that come from an Illinois Water Survey Investigation Report No. 111 by Stuart Cravens, et al. In particular, the question apparently is related to Figure 9, which is a -- The figure shows a series of -- Well, the caption to the figure is lineaments located by

interpretation of aerial photographs at two locations in Kankakee County. One of those two locations is a location that includes the proposed landfill location and areas to the north and east of it. That figure shows a number of the lineaments that were mapped from the aerial photographs that run to the northeast from the area of the facility.

And another figure in Mr. Sandberg's exhibit is a head gradient map for the Silurian dolomite, which, again, shows the location of the facility relative to the map and a pattern of heads within on that potentiometric map that would short northeastward flow in the dolomite. And that, too, is apparently from the Illinois Water Survey Investigation Report No. 111.

His question to me yesterday, which I am going to infer is the one he was trying to get you to ask, is what the importance might be of the fact that there is one of the larger lineaments that appears to correspond with the flow direction from the site from

the Iroquois River and whether or not -- what import that might have. So with that as background, what I

observed to him is that there are a host of things that can cause lineaments to show up on air photos.

They are -- can range from glacial features to bedrock faults to varied sediment features that impact surface vegetation to -- They are a starting point for a way to localize a geologic investigation. Certainly, some things that cause lineaments can also be the types of things that represent enhanced flow paths, but you can't make the assumption outright that because there's a lineament there, there is an enhanced flow path. But it does suggest a geologic anomaly that would be worth investigating because that is a possibility.

MR. RUNYON: Thank you very much. I believe that's all I have for you.

HEARING OFFICER: Mr. Bruck?

MR. BRUCK: No.

HEARING OFFICER: Mr. Porter?

MR. PORTER: Just a few.

CROSS-EXAMINATION

BY MR. PORTER:

Q. Good morning.

A. Good morning.

Q. Earlier you testified that there were some problems with the -- You believed there was a need for additional monitoring wells. Exactly where?

A. Well, until a flow system is determined or projected, modeled for conditions after the facility is put in, I would not venture to even begin to try and locate them. That's one of the problems with

what has been done here is that the monitoring system has been installed or proposed based on conditions without a 5,000-by-2,500-foot barrier to vertical flow and shallow horizontal flow. And until the impact of that has been determined, there is no point in trying to locate specifically where you would put monitoring wells.

One thing that I think can be said is as a generalization, however, is that a monitoring system that is proposed and is put in should include monitoring at depths below the 15 feet that are currently proposed. Everything on the site indicates a significant movement of water through the aquifer below that top 15 feet and regardless of the

geographic position. Unless the three-dimensional modeling somehow showed that the vertical gradient

disappeared -- And I would not, based on experience, expect that -- then the monitoring system should certainly include an increased vertical depth than what's presently there.

Q. So you don't have any specific criticism about the location of the monitoring wells, correct?

A. Some of those locations may end up being perfectly valid monitoring locations. There's no way to know.

Q. You do have specific criticism that the depth of the monitoring wells is not sufficient; is that correct? What depth do you propose?

A. Again, I would rely on a three-dimensional flow model of the system with the constructed facility and then look at what that hydrogeologic situation says in terms of where the monitoring needs to occur.

Q. But you personally did not run such a model, correct?

A. No.

Q. And you don't have any specific depth that you're proposing today, correct?

A. Not today, no.

Q. You did mention that you thought leachate monitoring systems could be improved; am I correct?

A. I think that part of the overall monitoring program for the landfill should be one in which leachate volumes on a cell-by-cell basis are used in a performance aspect, in that if the leachate volumes that are being produced are sufficiently different from those that are anticipated, that they be used -- that that information then be used to trigger investigation of why that occurs.

Q. Is there a specific piece of equipment that you're proposing?

A. Well, in this particular case, it's merely a matter of measuring the cell-by-cell production and having those numbers be used against a standard or criteria to determine when they have become anomalous enough that they need to be investigated as a potential problem.

Q. And the only other suggestion that I heard

was something about piezometers within the waste.

A. Right.

Q. Can you go over that again for me briefly?

A. Yes. I think that the water levels -- the leachate levels within the landfill should be monitored as a routine part of the monitoring program for the landfill.

Q. If I also understood correctly, this is the first time you've ever been retained by Mr. Mueller and not come to the conclusion that Criterion 2 had not been met; is that correct?

A. No, that is not correct.

Q. Have you ever testified for Mr. Mueller that Criterion 2 was met?

A. No.

Q. Other than this hearing, have you ever testified that you had no opinion regarding Criterion 2?

A. Yes.

Q. And in which hearing was that?

A. A previous hearing here, and the Rochelle hearing I know for certain. To be honest, I'm not

sure when I shifted on that and determined that I was

uncomfortable with the concept of a hydrogeologist making that determination.

Q. If all of these changes are made, the deeper monitoring wells are employed, the leachate is monitored as to each cell, piezometers are used, would you have an opinion that Criterion 2 was met?

A. An opinion as to whether or not there were sufficient data for someone to reasonably make a determination would have to be made based on an application upon which those kinds of changes were incorporated. In other words, we still haven't seen -- It hasn't been made available -- what the time series information from the existing or the expansion area are, what the chemistry information from the expansion area is. There's a lot of missing information from this application that can't be patched up just by saying okay, we'll put piezometers in the landfill, we'll deepen the gas collection wells, and we'll make a monitoring -- create a monitoring program for leachate volumes. Those are things that I think are needed in order to reach the

point you can make a decision, but there's also a whole set of data that are not available yet to even make a determination as to what else might be needed.

So I mean, I think ultimately, those aspects would provide -- those monitoring changes would provide significant elements for someone to make a determination of safety, but they don't repair this application and allow one from this application to do so.

Q. So if I understood that correctly, even if those changes were made, you would still have no opinion on Criterion 2, correct?

A. Even if there were a -- those changes were

made and if there were appropriate and correct modeling that was done -- the 3-D modeling was done and the monitoring wells were designed based on that modeling for the existing facility, as a hydrogeologist, I still will no longer make the determination that the public health, safety and welfare would be protected.

If all that were done and all of the data that were there that, as a city council member, as a

member of the public or as a decision maker for the County, that the data were there to legitimately make that, I would so state. But as a testifying hydrogeologist, I would not make that determination anymore. I don't think it's an appropriate determination to be made by someone wearing the hat

of a professional geologist and hydrogeologist.

Q. Are you aware --

A. That's a change. I mean, I have made that determination in the past.

Q. Are you aware that the hydrogeology/geology of the waste site is different than the City site?

A. Anecdotally, I've heard discussions that suggest that, yes. I've not looked at that application at all.

Q. You're aware that the City proposes to actually build a landfill directly into the aquifer without the in situ in place?

A. I have -- I have -- Yeah, that's consistent with what I've heard. Yes.

Q. You understand that that was what Mr. Shue was testifying regarding, correct?

A. Part of Mr. Shue's testimony was to that effect. I did not have the technical materials. I have no idea whether those technical details and discussion were supported or supportable by the application or not. The comments that I have been referencing to Mr. Shue here are independent of any geology or hydrogeology of the site. It's basic things that need to be done in order to get to the point that you can legitimately tell a hearing body you have the information you need to make an informed decision.

So I could care less -- I mean, Mr. Shue's comments as to detailed problems with, for instance, running a groundwater impact assessment, I don't know I have no opinion on whatsoever. His observation that the application for siting purposes should not be considered complete without sensitivity runs is, I

think, absolutely on the mark. His observations that three-dimensional modeling are the only way you're going to be able to determine the point at which a gradient reverses itself or doesn't reverse itself is absolutely on the mark. But that's independent of

the specific --

Q. Right. And you understand that was particularly important in regard to the City's application because they were proposing to build a landfill directly in the aquifer, correct?

A. It is absolutely as important with this facility.

Q. You are aware that the in situ in place are going to remain in place in regards to this facility, correct?

A. The ones that lie below the base of the landfill liner, yes.

Q. Are you indicating that there is no hydrogeological condition that would ever cause you to henceforth have an opinion that a landfill does or does not protect the public health, safety and welfare?

A. My testimony as a professional geologist, as I perceive the duties at this point, and as far as I know, indefinitely in the future, are that my job is to determine whether the data are adequate for the conclusions, whether the conclusions are consistent

with the data, that a complete and accurate description of the existing facility and the facility after the construction of the landfill are correct and accurate and that there is a monitoring program that will allow one to determine there's a problem if

a problem develops. If those conditions are met, then I can testify to the county you have what you need to make the decision or the city or whatever the decision body is. That is the limit of what my job is.

Q. Have you ever provided that testimony to a county or local municipality trying to decide a siting hearing that they have all the information they need to come to a conclusion?

A. It's a long time ago. There may be one. I'm trying to think what -- It's in the southern part of the state.

Q. Was it more than a decade ago?

A. Yeah, it would have been more than a decade ago.

Q. In the past decade since you've been testifying, have any of the facilities testified at a

local municipality did not have sufficient information eventually received permit approval from the IEPA?

A. Oh, yes, absolutely.

MR. PORTER: Nothing further.

HEARING OFFICER: Mr. Smith?

MR. SMITH: No, sir.

HEARING OFFICER: Ms. Harvey?

MS. HARVEY: No, thank you.

HEARING OFFICER: Members of the Regional Planning Commission?

Mr. Washington?

CROSS-EXAMINATION

BY MR. WASHINGTON:

Q. Mr. Norris, in reference to your statement about blocking the leachate flow channels, an operator with the knowledge of past landfill

performances and data that supports the expected amount or typical amount of leachate to be produced at any given time during the life of the landfill, why would there be a misinterpretation of the data of leachate produced of that landfill at any given time?

A. One of the concepts of the contemporary landfill is that there is a limit to the life period over which leachate will be produced. If you are looking at a leachate production from a closed landfill that is producing 500 or 5,000 or 10,000 gallons every week, month, year, whatever, on a regular basis, and the production starts to decline and drops off to 300 gallons or less, then an interpretation that might be consistent with that is that the process of generating leachate has ended,

leachate is no longer being generated by the landfill, and I, as an operator, can now approach the state and say this landfill is inert, it's done, and I should be allowed to reclaim my bonding. It's safe. It's not producing leachate. It can't create a problem. So our job, you as regulator, me as operator, is finished, and we can walk away from it.

Q. Again, though, why would they misinterpret that information when they have past history of that same type of operation going on in a typical landfill of this kind with the same types of material being deposited over that same period of time?

A. Not all landfills are going to operate the same. The details of construction are not always the same. The fact that leachate is not making it down to the pump to be pumped out does have another explanation. That explanation is it can no longer get into the leachate collection system. And you really can't determine which of those two is the controlling piece of information unless you're looking at whether or not water levels are rising in the waste in that landfill.

It's a very non-aggressive, non-invasive approach to verify the conclusion that leachate is not being produced as opposed to the fact that you have a plugged leachate collection system before the operator is allowed to leave the facility behind.

MR. WASHINGTON: Thank you.

HEARING OFFICER: Any other members of the Regional Planning Commission?

(NO RESPONSE.)

Members of the County Board, do you have any questions of this witness?

(NO RESPONSE.)

Members of the general public?

Yes, sir.

MR. HARRISON: Bruce Harrison. I do have a couple questions.

CROSS-EXAMINATION

BY MR. HARRISON:

Q. In your earlier testimony you said that 18 months had passed without Waste Management addressing any of the problems from the last application; is that true?

A. I think I said 13 months.

Q. 13 months?

Why do you think none of these things were addressed?

A. I would have to speculate. I don't know why they weren't. It's -- I don't even want to speculate as to why. I don't know why they weren't. I just observed that they weren't addressed.

Q. Well, the reason why I asked this question is because if they weren't addressed, you know, I'm trying to figure out if any of these things were necessary even because they weren't addressed. You

know, that's why -- You know, I don't have the information that you people do.

A. Right. There's -- I mean, there's a host of reasons hypothetically why they may not have been addressed. Ms. Underwood made clear with respect to the sensitivity runs that she didn't think it was part of the process for siting to provide that information. I do. But they certainly -- The decision not to include that presumably would have included her opinion that sensitivity runs, the

County doesn't need to see the sensitivity runs to come to a decision, that it's part of the permitting process, it's not part of the siting process. I adamantly disagree with that concept.

Ms. Underwood and I have substantially different views and opinions of what the hydrogeology -- the details of the hydrogeology at the site are. Perhaps none of my concerns were raised because she didn't see the conflict and my objections as having the merit to discuss. It may be that Waste Management said the permit was approved last time, why change it, let's just put it back in

the way it was. Maybe the cost of addressing it was beyond what their budget -- I mean, I simply don't know.

The concerns I raised maybe weren't addressed because they were dismissed. We don't know. They're still out there. As a hydrogeologist with my experience and background, I think they are still absolutely accurate descriptions of inconsistencies and problems that need to be addressed, but I don't know why they weren't.

Q. I have some concerns about test wells, some of the testimony that you were talking about test wells.

Well, these test wells that are out there, you were testifying to some of the questions some of this panel asked you. I'm assuming a test well is kind of like fishing? There's a lot of luck involved when it comes to checking a well? Is that a fair lay person's analogy of the test well?

A. Perhaps. But I would like to take the analogy a little further in that a good fisherman

22 doesn't just operate randomly. He usually knows the
1 species he's looking for. He usually knows the
2 places he's likely to find that. He knows what the
3 bait is likely to do.
4 So you can put test wells in randomly,
5 monitoring wells in randomly and hope you have them
6 in the right place to find something that's leaking
7 or you can use the science of geology and
8 hydrogeology to optimize the opportunity to catch
9 that fish.
10 Q. My other question, is it your professional
11 opinion that based on the information that Waste
12 Management has provided, the County does not have
13 adequate information to make a determination as to
14 the protection of the public health, safety and

welfare?

A. Yes, that is my opinion.

MR. HARRISON: Thank you.

HEARING OFFICER: Mr. Mueller, are you going to have some redirect?

MR. MUELLER: About three minutes' worth.

HEARING OFFICER: Okay. We've been at this for more than an hour and a half. Let's take a short

recess, during which time I'd like to talk to Mr. Flynn about the availability of his witnesses and where we go from here.

MR. FLYNN: Let me make some phone calls first.

HEARING OFFICER: Okay. Let's take a ten-minute break and try to finish Mr. Norris before lunch.

(A brief recess was had.)

HEARING OFFICER: Let's reconvene the public hearing. Just a couple of announcements before we continue. We've had some scheduling problems with witnesses, so what we're going to do we're going to finish Mr. Norris this morning, his redirect and recross. We're going to then go through the exhibits that Mr. Moran submitted, Petitioner's Exhibit 3, what's part of it, what's not part of it. Mr. Flynn may want to supplement that, as I understand it.

MR. FLYNN: Correct.

HEARING OFFICER: And then we're going to adjourn for the day. There will be no afternoon or evening session. We'll reconvene tomorrow morning at 8:30.

Mr. Flynn has indicated he has two

witnesses at that time, one on traffic, one on real estate. Mr. Mueller has indicated he can't be here

tomorrow morning but he's agreed we can go ahead without him. That would be the conclusion of everyone's case in chief. The applicant would then have an opportunity to introduce rebuttal testimony, and that may consist of one, two or possibly three witnesses depending upon Mr. Flynn's witnesses. It may consist of Ms. Underwood, Mr. Corcoran on traffic, Ms. McGarr on real estate.

Is that correct?

MR. MORAN: Yes.

HEARING OFFICER: And so we would plan on going most of the day tomorrow, even tomorrow evening if we have to. I understand that Ms. McGarr may not be available until Tuesday, so if we don't get it done tomorrow, we may come back Tuesday for Ms. McGarr's rebuttal and then for closing arguments.

But that determination hasn't been made yet because you don't know what testimony Mr. Flynn will introduce; is that right?

MR. MORAN: That's correct.

HEARING OFFICER: Everybody clear on that? Any questions?

(NO RESPONSE.)

So after this morning's session, we'll adjourn until tomorrow morning at 8:30.

With that, Mr. Mueller, redirect?

MR. MUELLER: Thank you.

REDIRECT EXAMINATION

BY MR. MUELLER:

Q. Mr. Norris, you were asked if you have done sensitivity analyses in connection with preparing a permit application, and your answer was that you had not.

My question is have you done sensitivity

analyses of groundwater impact assessments in other contexts.

A. Yes.

Q. And what is the significance and importance of having sensitivity analyses performed and completed?

A. They're an absolutely critical part to understanding the results of the modeling for your

own benefit and providing a meaningful ability for someone to review and understand the effects of your modeling that you're presenting to them. It can point out critical flaws in your approach. It can help you not make mistakes that you might otherwise make. But for the most part, it provides confidence for both yourself and for the parties for whom you are doing the modeling.

Q. Mr. Norris, in response to one of Mr. Porter's questions, you indicated that you understood anecdotally that the Town and Country facility is proposed to be actually constructed in the dolomite and that that distinguishes it from this facility, which is proposed to leave some in situ, unconsolidated materials between the bottom of the liner and the dolomite, correct?

A. Yes.

Q. Now, based upon your review of the data in this application, do you have an opinion as to whether the unconsolidated materials proposed to be left under the liner provide a meaningful or significant barrier between the bottom of that liner

and the top of the dolomite?

A. No, I don't think they do for two reasons.

One, the representation of those materials as being significant factors of safety with respect to the proposed facility are badly exaggerated in the assessment within the application and the hydrogeologic data from the site indicate that they are at least several orders of magnitude more conductive than is represented.

But at least as critical, and perhaps ultimately critical, is that the thickness of those sediments varies significantly in terms of the amount of barrier that they have. And it's one of those cases where an average number is not what's critical. What's critical is the least protective flow path. And there are places where, at most, the fine grain sediments that were referred to as being left in situ are no more than a couple of feet thick, if that. So the concept of these in situ materials below the

liner and above the bedrock aquifer do not convey that level of protection or distinction.

Q. Mr. Norris, you were asked about the number

of times you have reviewed applications on my behalf. Eliminating duplications where there have been multiple siting hearings such as here and in Rochelle, at how many different venues have you consulted for me?

A. I believe six.

Q. And Mr. Moran reminded you that your conclusions were rejected by the Will County Board. With regard to the six venues where you've consulted for me -- And obviously, Will County was not one of them -- what were the outcomes of those?

A. Lake in the Hills Village, the application was denied. LandComp in LaSalle County was approved. The application of Tazwell was withdrawn. The application at Rochelle was denied. This application is pending. And the application in Coles County was denied. So we've got three denials, one approval and one withdrawn and one pending.

Q. And in each of those denials, did the county board, or city council as the case may be, find Criterion 2 had not been met?

A. To be honest, I don't know, George.

Q. Fair enough.

Lastly then, with regard to the Will County case where your conclusions were, as Mr. Moran said, rejected, in fact, after that process was complete, weren't you invited on behalf of the Sierra Club to sit down privately with Waste Management's technical people and negotiate and work on changes in the

monitoring system?
A. Yes.
Q. And did you, in fact, do that?
A. Yes.
Q. And did the results of those conferences manifest themselves in the permit application which was ultimately granted by the IEPA?
A. That's my understanding.
MR. MUELLER: That's all I have.
HEARING OFFICER: Mr. Moran?

RECROSS-EXAMINATION

BY MR. MORAN:
Q. Mr. Norris, before today, have you ever opined that sensitivity analyses need to be performed on a groundwater impact assessment done in connection

with a local siting application?
A. No. I don't know that it's ever been an issue before the Kankakee one.
Q. Well, it became an issue here because Mr. Mueller showed you the testimony of Mr. Shue from Town and Country; isn't that right?
A. No. It became an issue here when I looked at the groundwater impact assessment critically for this application for the first time.
Q. Well, you didn't have any comments about the sensitivity analysis during our first set of hearings back in November of 2002, did you?
A. No. I had not had the time to investigate the details of the groundwater impact assessment modeling that was presented in the application. It was there, but it was not part of what I had the time and the resources to review for that hearing.
Q. And the Town and Country hearings to which

Mr. Shue's testimony related occurred in June of 2003; isn't that correct?

A. Yes.

Q. And that would have been after the first

set of hearings here, correct?

A. Correct.

Q. Just so that I'm clear, you indicated that you looked at no other portion of that siting application on behalf of Mr. Mueller; is that correct?

A. That's correct.

Q. I think you've also indicated that you have not within the last ten years ever found a siting application that was submitted to a local siting body sufficient in terms of the amount of information it provided that related to Criterion 2; is that correct?

A. Yes.

MR. MORAN: Nothing further.

HEARING OFFICER: Mr. Flynn?

MR. FLYNN: Just one or two questions.

RECROSS-EXAMINATION

BY MR. FLYNN:

Q. You were asked some questions a little bit earlier -- I believe it was Mr. Porter that asked them -- in terms of where would you locate monitoring

wells on this site. Do you recall those questions?

A. Yes.

Q. And I believe you indicated at this point in time, you can't give an exact location, an address, so to speak?

A. Correct.

Q. You need additional information in order to do that?

A. Yes.

Q. A map, so to speak? A hydrogeologic map?

A. I think the ultimate presentation of that information would be expressed as a map certainly.

Q. That information is just simply not contained within this application?

A. That's correct.

MR. FLYNN: That's all.

HEARING OFFICER: Mr. Power?

MR. POWER: Nothing.

HEARING OFFICER: Mr. Runyon?

MR. RUNYON: Nothing.

HEARING OFFICER: Mr. Bruck?

MR. BRUCK: No.

HEARING OFFICER: Mr. Porter?

MR. PORTER: No, thank you..

HEARING OFFICER: Mr. Smith?

MR. SMITH: No, sir.

HEARING OFFICER: Ms. Harvey?

MS. HARVEY: No, thank you.

HEARING OFFICER: Members of the Regional Planning Commission?

(NO RESPONSE.)

Members of the County Board, any questions of this witness?

(NO RESPONSE.)

And members of the public, any questions?

Yes?

MR. HARRISON: Bruce Harrison. I just have one more question.

RECROSS-EXAMINATION

BY MR. HARRISON:

Q. Is it your professional opinion that this application is severely lacking in information to make a decision?

A. Yes.

MR. HARRISON: Thank you.

MR. MORAN: Mr. Hearing Officer, if I could --

HEARING OFFICER: Yes.

MR. MORAN: -- I've just been informed by Ms. Underwood that the Karlock Exhibit D contains a number of items in it that are really unexplained. And perhaps I should have asked this before of Mr. Norris, but I would just ask leave to have him go through and explain these numbers because, frankly, we don't understand them.

HEARING OFFICER: Any objection, Mr. Mueller?

MR. MUELLER: As long as it's limited to eliciting information regarding the meaning of the exhibit, I have no problem with it.

HEARING OFFICER: And I would allow you further redirect if there are other questions.

MR. MUELLER: That's fine.

FURTHER RECROSS-EXAMINATION

BY MR. MORAN:

Q. Mr. Norris, do you have Karlock Exhibit D in front of you?

A. Yes.

Q. Could you just take us through that exhibit, and beginning in the upper right-hand corner with your Q equals K times small I times A, and indicate to us what each of these letters and each of these designations represent and go through that entire exhibit?

A. Sure. Q equals K times I times A is a standard expression of Darcy's Law.

HEARING OFFICER: Can everyone hear Mr. Norris? Do you want to pull that microphone a little closer?

BY THE WITNESS:

A. Q is the total flux through a system. K is the hydraulic conductivity of the materials in that system. I is the gradient driving the flow, and A is the area across which flow occurs.

In the top figure, the figures under monitored zone, I have the same equation with the subscripts M indicating applying that equation to the monitored zone, the top 15 feet of bedrock. So it's the same equation. The Q through the monitored perimeter is equal to the K of that zone times the

gradient within that zone times the area of the perimeter.

That is expanded upon in the next line where the area of the perimeter is shown to be 15, which represents the 15 feet times the sum of the linear distances around the perimeter, which would be 2,500 feet, 5,000 feet, and 2,500 feet.

And the final line there is merely converting that area into the number of acres, which would be multiplying those -- adding those numbers together and multiplying by 15 and dividing by 43,560, converting that area of flow around the perimeter into the number of acres of flow.

The basal flow --

Q. Mr. Norris, can I just interrupt you for a moment?

A. Sure.

Q. What value did you use for the K value in that series of equations?

A. I have not put a K value in that calculation.

Q. So there was no specific K value used?

A. No. That's correct.

Q. Would the same be true for your gradient, small I?

A. That's correct.

Q. You used no number for gradient?

A. There's no number in there at this point, that's correct. Those are just -- Those are just markers in the equation.

The basal flow, which I used the subscript V, which just is to indicate vertical. So, again, we have QV is equal to KV times IV, the vertical gradient, times AV, which would be the area. The area of the vertical flow is 2,500 times 5,000,

which is equivalent to 276 acres -- I'm sorry -- 287 acres.

Then Q, the next equation is I have written the vertical conductivity in terms of the conductivity of the upper zone in the application, the average gradient -- or not the average gradient. I'm sorry. The average hydraulic conductivity is, I believe, 13.9. It's on a previous Karlock 7 exhibit.

Okay. Karlock Exhibit 7.22 actually has

the numbers from the appendices, that the average hydraulic conductivity of that upper 15 feet was 13.6 feet per day. The average hydraulic conductivity for the deeper tests within the aquifer was 10.9 feet per day. So the ratio between those two is that the deeper hydraulic conductivity is 80 percent of the shallow, so you can express the KV as being 0.8 KM.

The next figure is an expression of the

vertical hydraulic gradient as a function of the hydraulic -- lateral hydraulic gradient in the upper aquifer, the upper 15 feet. The upper 15 feet as mapped and discussed in the application averages around .005 to .006 depending on what the direction is. The vertical gradients range from 0.1 to 0.0005 or 6.

I chose to disregard the highest hydraulic conductivity and looked only at the lower hydraulic conductivities, which are 10 percent of the lateral gradient -- I'm sorry -- the -- I disregarded the highest vertical gradient, considered only the lower vertical gradients, which are about 10 percent of the

lateral gradient, so I have used in the equation instead of IV, I have expressed it as 10 percent of the monitored zone gradient. And the area of vertical flow is 83.3 times the area of the perimeter flow or the monitored flow.

So those factors then can be combined and you end up with the volume of vertical flow being equal to 6.7 times the volume of the metered flow or the monitored flow.

The final calculation is merely 6.7, which is the relative portion of the vertical flow divided by 7.7, which is the combined flow through the two zones.

Q. The last statement on Karlock Exhibit D states that 87 percent of flow penetrates below monitoring wells?

A. Yes.

Q. How did you determine or arrive at the 87 percent?

A. As I indicated, that's 6.7 divided by 7.7. 6.7 is the relative proportion of vertical flow,

vertical flux. 7.7 would be the combined portions of

vertical and horizontal. 6.7 divided by 7.7 is 87 percent.

MR. MORAN: Thank you, Mr. Norris.

HEARING OFFICER: Any redirect, Mr. Mueller?

MR. MUELLER: No, thank you.

HEARING OFFICER: Any other questions, Mr. Flynn?

MR. FLYNN: No.

HEARING OFFICER: Mr. Power?

MR. POWER: No.

HEARING OFFICER: Mr. Runyon?

MR. RUNYON: No.

HEARING OFFICER: Mr. Bruck?

MR. BRUCK: No.

HEARING OFFICER: Mr. Porter?

MR. PORTER: No.

HEARING OFFICER: Mr. Smith?

MR. SMITH: No, sir.

HEARING OFFICER: Ms. Harvey?

MS. HARVEY: No questions.

HEARING OFFICER: Any other members of the Planning Commission?

Yes, sir.

MR. PAARLBERG: Ralph Paarlberg from the RPC.

CROSS-EXAMINATION

BY MR. PAARLBERG:

Q. After the '02 hearings, there were provisions put in the agreement to not allow the overlay of the new landfill on top of the old because of concerns about the subbase liner leakage, whatever.

Do you have an opinion on that? It seems to have crept back in?

A. Yeah. I did not look at that or involve myself with that. I think that is certainly primarily and almost exclusively an engineering issue. It's really outside my expertise.

MR. PAARLBERG: Thank you.

HEARING OFFICER: Anyone else of this witness?

Mr. Harrison?

MR. HARRISON: Bruce Harrison. I do have a question.

FURTHER RECROSS-EXAMINATION

BY MR. HARRISON:

Q. From the testimony you've heard so far and the data that you have available to you, in your professional opinion, do you believe Waste Management is doing an adequate job of protecting the public, health and welfare at the present landfill?

MR. MUELLER: Mr. McCarthy, I'm going to object to that question as beyond the scope.

MR. HARRISON: I'm going to say something to the objection that he raised. In some of the testimony that I heard previously, I believe that he testified to some comments on the existing landfill, and that was what my question was directed to.

HEARING OFFICER: I think it is beyond the scope of his testimony, but if he has an opinion, he can state it.

BY THE WITNESS:

A. The performance of the operator relative to what the monitoring has shown at the existing

facility is not a performance that would be acceptable were it under my direction, were I

involved technically. The result has not, I think, at this point put anyone's safety directly at risk.

In spite of the performance of the operator, the IEPA has insisted on some remedial activities. I think those remedial activities could have been initiated far sooner than they were, but I guess I'm sort of ambivalent. I think the operator certainly could have done a better job; but so far, the approach of the operator, as far as I can tell, hasn't damaged anybody yet.

Q. As a follow-up question, I believe some of your testimony was about the quality of the water or the sample that changed?

A. Yes.

Q. Can you explain that so I can understand it?

A. Well, there has been water quality

degradation in the vicinity of the existing landfill. That water quality degradation has led to issues of noncompliance with permit requirements at various times in the past. One of the -- Part of the process of that is an opportunity to demonstrate that the

degradation is not being caused by the landfill. And there can be a lot of ways to bring yourself back into compliance without making any changes in your operations, without making any changes to water quality, but getting the State to say okay, it's all right that that's happened, it's not your fault, or in particular, it didn't happen because of a leachate release from the landfill.

My professional opinion is that the operator has been able to convince the State of some things that I don't think accurately reflect the hydrogeology that's going on there, but that has brought them back into compliance. It hasn't changed the water quality. And while the changes in water quality that have occurred may not be the result of the leachate leak, I do think that they are the result of the construction and installation of the landfill and the changes that that landfill has made to the site.

So while some of the water contamination, some of the water degradation is the result of material from within the landfill escaping, others of

those changes are legitimately not related to leachate releases, but they are related to the operation. And those kinds of changes are not something that either the State regulations address or the operator then is worried about doing something

to correct.

Q. Is it your opinion as a hydrogeologist that this situation will deteriorate in the future?

A. The situation at the existing facility?

Q. Yes.

A. There, apparently, is going to be remediation of at least parts of it, the parts that are directly attributable to materials that have come out of the landfill.

With respect to some of the other changes, I think the jury is still out as to whether some of those changes have reached their new, steady state yet or whether they may continue to develop. I don't know in that case.

MR. HARRISON: Thank you.

HEARING OFFICER: Any other questions of this witness?

(NO RESPONSE.)

Hearing none, Mr. Mueller, have you offered Karlock Exhibit D and E?

MR. MUELLER: Actually, I don't think I've offered any of my exhibits, so I would offer them all now, A, B, C, D and E. And with respect to A and C, I still owe you the ten copies, which I'll have when I return here tomorrow.

HEARING OFFICER: Any objection to the admission of those exhibits?

MR. MORAN: No.

HEARING OFFICER: Anyone else have any objections?

(NO RESPONSE.)

They will be admitted.

I'd like to take a few minutes. This has been raised by Mr. Flynn, and the applicant has

STATE OF ILLINOIS)
) SS.
COUNTY OF WILL)

I, Tiffany M. Pietrzyk, a Certified Shorthand Reporter and Notary Public in and for the County of Will, State of Illinois, do hereby certify that I reported in shorthand the proceedings given at the taking of said hearing and that the foregoing is a true and correct transcript of my shorthand notes so taken as aforesaid and contained all the report of proceedings given at said hearing.

Dated this 15th day of January, A.D. 2004.

TIFFANY M. PIETRZYK, CSR RPR
CSR No. 084-004371