BEFORE THE POLLUTION CONTROL HEARINGS BOARD

STATE OF WASHINGTON

AIRPORT COMMUNITIES COALITION, Appellant, CITIZENS AGAINST SEA-TAC EXPANSION, Intervenor/Appellant, vs. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, and PORT OF SEATTLE, Respondents.	PCHB No. 01-160

TRANSCRIPT OF PROCEEDINGS

DAY NINE

March 28, 2002
Lacey, Washington

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BE IT REMEMBERED that the above-entitled matter came on for hearing before the Pollution Control Hearings Board, Day Nine commencing on the 28th day of March, 2002, and continuing through Day Ten, the 29th day of March, 2002. The hearing was conducted at the Environmental Hearings Office, 4224 6th Avenue SE, Rowe Six, Building, Lacey, Washington.

Sitting as the Washington State Pollution Control Hearings Board were KALEEN COTTINGHAM, presiding; ROBERT JENSEN, Board Chair, and BILL LYNCH, Member.

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I N D E X

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E X H I B I T S

NUMBER	DESCRIPTION	IDENTIFIED	ADMITTED
1023	Resume and Curriculum Vita for expert witnesses	9-0024	
0045	Letter from Northwest Hydraulics Consultants to Corps of Engineers 11-26-01	9-0025	
0804	Amendment to Interlocal Agreement between City of SeaTac and Port of Seattle	9-0026	
1178	Pacific Groundwater Group Hydrologic Studies Report 6-19-00	9-0033	
1305	Pacific Groundwater Group SeatTac Third Runway Embankment Fill Modeling in Support of Low Streamflow Analysis 11-27-01	9-0034	
1118	Parametrix Water Effect Ratio Screening Study at STIA	9-0057	
0649	Memorandum from Todd Pollard to Keith Smith 2/29/00	9-0062	
0686	2001 City of Des Moines Water Quality Monitoring Program	9-0071	
0005	WAC 173-201A	9-0121	
0285	1998 Soil Fill Acceptance Criteria	9-0131	
0286	1999 Soil Fill Acceptance Criteria	9-0131	
0294	Third Runway Project Off Site Borrow Source Baseline Chemical Characterization Black River Quarry	9-0133	

E X H I B I T S

NUMBER	DESCRIPTION	IDENTIFIED	ADMITTED
0287	Memo from Beth Doan to Paul	9-0140	
1320	S.S. Papadopulos & Assoc. STIA Third Runway Embankment Fill Water Quality and Transport Analysis	9-0150	
0076	Analysis of Preferential Ground Water Flow Paths	9-0176	
2014	Natural Resource Mitigation Plan	9-0207	

MS. COTTINGHAM: I just jotted down some things I wanted to take care of this morning on our little agenda, and we can add some stuff to it. In fact, I've already added a couple of things. I've have added number 5 at the end, time budget for today and tomorrow morning from each of the parties, and I've also added number 4(a) where it says, "Keeping the record open for depositions and for the final exhibit list."

Why don't we just kick through these things. The first one is the concern raised by Mr. Poulin on the access to the materials after hours.

MR. PEARCE: Thank you, Your Honor. I did talk to Mr. Tobiason. He said he was in here actually having a conversation with Mr. Fish, who is the president of CASE, who was here the whole time. And Scott was looking at some boards, he didn't know whose boards were whose, but he was looking for some figures off the stormwater master program, didn't look through any of the board's materials, didn't look through any of ACC's, didn't even look through any of our materials, but that's what Mr. Tobiason said he was doing.

MS. COTTINGHAM: Okay.

MR. POULIN: That he was just looking through the large-scale --

MR. PEARCE: That's what he said, yeah, he was just looking through the large-scale exhibits.

MR. EGLICK: Mr. Fish is here, maybe we should --

MR. POULIN: Does that comport with what you saw?

MR. FISH: No, it's not. I came in early from lunch and saw Mr. Tobiason going through the ACC documents and writing a bunch of stuff down. Physically he went through two books. We were standing about this far apart and he was doing something with these books right here, and he spent a lot of time doing it. He went over to those files, to these files, back here, back here, spent most of his time here, had a large knapsack that looked like it had binders in it. That's about all I can add to it.

MS. COTTINGHAM: Just so you know, we are missing some binders up here. We're missing one at least that we know of.

MR. PEARCE: I don't think he has any binders. I certainly can ask him. He said he was interested in some numbers from the stormwater master program, the stormwater management program.

MS. COTTINGHAM: That may be the one binder that we're missing up here. Board Member Lynch is

missing one binder.

MR. PEARCE: I believe that's the one that we have one copy of.

MS. COTTINGHAM: No, he is missing a binder that I have and that Board Member Jensen has, so -- I mean, this is not a trial to determine what's missing, I just want to make sure that we are not missing evidence and that we don't have people going through our notes and stuff up here.

MR. PEARCE: I certainly don't think he has any of the evidence, but I can check with him again, but I don't believe he took anything. He didn't tell me he took anything out of the room at all. He was looking for some figures.

MS. COTTINGHAM: Okay.

MR. PEARCE: I apologize for any confusion.

MS. COTTINGHAM: Why don't we make sure that at lunch breaks and at the end of the day that the last people who leave the room are the attorneys to make sure that we're not setting up a situation again.

The second one is to get an assessment from Mr. Kray where we are on the depositions to be published.

MR. KRAY: Ecology and the port have completed their review and have prepared their counter excerpts and their objections to the designations of ACC and CASE for

seven of the eight. Ms. Marchioro is back at the office finalizing Mr. Hellwig, which is the longest of them, and we anticipate that we'll have that by lunchtime.

I have the seven, I can provide them to ACC and CASE. I was running a little bit late and kind of dashed in, and you were here, so we started. But at any point this morning I can provide that to them. Then the question is how much time do they need to respond to our objections.

MR. EGLICK: It would help to see it first.

MR. POULIN: It's kind of hard to guess.

MR. KRAY: I understand.

MS. COTTINGHAM: Why don't we again tomorrow morning -- I would appreciate if you could share as soon as possible the entire package.

MR. KRAY: I'll do that right now.

MS. COTTINGHAM: And I would like a sense either at the end of today or first thing in the morning. This may be one of those issues that we carry over past the close of the record, actually, not the close of the record, but past the end of tomorrow, that we then finalize through a written order.

MR. KRAY: That's fine. The one comment I would make on that is we worked diligently to get these responses quickly. I'd prefer that we give a

commensurate amount of time for their response as well.

MS. COTTINGHAM: Okay. So is tomorrow morning --

MR. KRAY: No, they can let you know once they have looked at how long they need, but my question goes to let's not leave it open for a couple weeks.

MS. COTTINGHAM: I wasn't planning on it.

Okay, the third thing on my agenda is we've been hearing from public members that there are a lot of people planning to come for the closing arguments, so it would be nice if at the end of today we could get this room at least organized enough that we can have space for -- one, we are going to need space for the cameras, because TVW is going to set up tonight or tomorrow morning, and I want to make sure that we have at least the last two rows for the public and, if it's at all possible, not to have every person in the room. So I am assuming that we're not going to have witnesses lined up, that we can use the majority of the room for counsel, a few paralegals and the rest for the public.

Is that okay?

MR. KRAY: No objection from Ecology.

MR. PEARCE: No objection.

MS. COTTINGHAM: So at the end of today, it would be nice if you could all help by moving some of the

charts and all that stuff so that we can be prepared for tomorrow.

MR. POULIN: And will the podium be brought back for the afternoon?

MS. COTTINGHAM: Yes. We'll have it right outside the door and we'll break at lunch and make sure that there's enough room there between the two tables.

MR. KRAY: What time are you planning to begin, Ms. Cottingham, for closing?

MS. COTTINGHAM: What we plan to do is hopefully finish in the morning - the sooner you finish, the longer you get to prepare - and then come back either at 1:00 or 1:30, depending on what the parties would prefer.

The next thing is some post hearing activities. As we were just talking about keeping the record open for the deposition publication, so we'll get a little bit better sense of that on Friday. I also want to go through the list and identify those previously objected-to exhibits that have come in without further elaboration on the exhibits. I'm sure that there will be exhibits that haven't been talked about over the last two weeks and we'll need to have some sort of resolution on whether they're admitted or not. And my preliminary indication would be that if none of the parties used a witness to

introduce them, to allow them to come in for background only. And that would then be consistent with the hearsay objections that have been raised.

So what I plan to do is hopefully in the next day to go through my list and the exhibit list to see where -- and there have only been about three or four where the objection was reiterated and argued and I made some sort of ruling. The rest have either not been introduced or have been introduced without further objection.

And what I plan to do then is to take the exhibit matrix, to finalize that, and to issue it with an order as the final exhibit list for purposes of this hearing, if that's acceptable. And I would like to get that done sometime next week.

Is mid-week acceptable time period for all of you?

MR. KRAY: Yes.

MR. EGLICK: Yes.

MS. COTTINGHAM: And I think that's really what I'd like to do for both the publication of the depositions and the final evidence list, is to set it Thursday next week. Anybody know what the date is, is that like the 3rd or 4th?

MR. EGLICK: Monday is the 1st, isn't it?

MR. POULIN: Thursday should be the 4th.

MS. COTTINGHAM: And I will try and memorialize

all this in an order, but I just wanted to let you know what my thoughts were on that.

We still have outstanding -- Ms. Osborn and Mr. Young, I believe, were working on some further redaction materials.

MS. OSBORN: I have just reviewed the redacted version of Mr. Garland's prefiled testimony and it's fine.

MS. COTTINGHAM: As submitted by Mr. Young. I haven't seen that yet.

MR. YOUNG: I have copies and all that here, so I can provide those. I can provide them now or --

MS. COTTINGHAM: Is it just as a page or has it been written in some sort of --

MR. YOUNG: We have two things, we have his revised testimony, which has been signed by him, and then we have an offer of proof which contains the things that were excised, which I signed, and so it's two documents, and I've got about a zillion copies here, which probably won't be enough.

MS. OSBORN: One of the --

MS. COTTINGHAM: Let's try not to talk over each other because we have a record being preserved here.

MR. YOUNG: So should I file these with you or with Tracey or how do you want me to do that?

MS. COTTINGHAM: I don't know. Why don't you give it to me and I will convert it into some sort of an order, acknowledging the redacted, much like I did with the earlier ones. I will view it as a motion in limine of some sort.

MR. YOUNG: Here is the revised testimony, an original and four copies, and here is the offer of proof, original and four copies.

MS. COTTINGHAM: Okay. The next one is the preparation of draft findings of facts and conclusions of law. You have in front of you my attempt to put together an outline for the opinion, and since I did this late at night last night, I may have accidentally, in my inability to use word processing, I may have renumbered them accidentally, so if you could look at the issues to make sure I have the same number.

And what I'd really like from you is whether this is an outline that you believe captures the framework of this entire appeal. I would like to know whether there are things missing, I would like to know whether you would structure it differently, because what I would like to suggest is that we reach agreement on a common outline so that when each side submits draft findings of fact and conclusions of law, that we are all working from the same general approach. So what I'm going to suggest is that I

hear back from you by next Thursday on this outline.

And then the next thing I'd like to know is I would like to set a time line for filing draft documents. I'm going to suggest one per side. Would that be acceptable for Ecology and the port to jointly submit one draft?

MR. PEARCE: I think we can work that out.

MS. COTTINGHAM: And the same with ACC and CASE.

MR. EGLICK: I think we can do it jointly, yes.

MS. COTTINGHAM: Is one month enough time for the parties to do that?

MR. PEARCE: More than enough.

MR. EGLICK: Yes.

MR. POULIN: Yes.

MS. COTTINGHAM: So if we set a deadline of April 26th to have that filed and shared with the parties as well.

Then I have a question about transcription. Do any of the parties plan to have the hearing transcribed? I guess this is one of those strategy things that nobody tips their hand because they don't want to pay for it, I suppose.

MR. KRAY: I guess, Ms. Cottingham, I suspect, and I can't necessarily speak for everybody, I suspect that at some point this record will be transcribed and

moved on to some other venue one way or another, and so perhaps the parties should discuss a way to handle that. I don't think we've had an opportunity to discuss it at all, I don't know, am I speaking out of school? Has anybody talked about this issue?

MR. EGLICK: Not with the other parties. Frankly, you know, there is the ex-checker issue.

MS. COTTINGHAM: The --

MR. EGLICK: Money.

MR. POULIN: Who pays.

MR. EGLICK: And I don't know, you know, that that's something that we know without going back to our clients, asking for an appropriation, so to speak, or some sort of indication that we can afford the whole transcript.

MS. COTTINGHAM: Well, I raise this because if it would be helpful in drafting either the opinion by the board or the draft findings, that the parties might be well served in having this discussion early so that it could be of use to you. So I don't have an opinion one way or the other, but I'm going to raise it and ask that you talk among yourselves and then perhaps talk with each other.

MR. KRAY: Is there some way that we can get an estimate of the total cost once we have a sense of how

much time was used for --

MS. COTTINGHAM: I can have Tracey ask Gene Barker & Associates to give us a rough estimate, and, hopefully, she could get a rough estimate in the next day or so.

MR. KRAY: I think that would be a useful piece of information.

MS. COTTINGHAM: Okay. I'll do that. I'm not asking you to make any decisions on the spot. I raise it just because it often happens after you need it, you know, so anyway --

Those are the only things that I wanted to raise with you this morning. Is there anything that you would like to raise in a procedural manner?

MR. KRAY: I believe you indicated something about a time budget is also on your --

MS. COTTINGHAM: Oh, yes, time budget for today and tomorrow. We don't have much time left. We have eight hours and ten minutes, five minutes.

MR. PEARCE: We are hoping to at least get through -- of course, it depends on, you know, I understand parties have to make objections for the record, but if we could keep our colloquy short. And depends on the amount of cross, of course, but we're confident, we're hopeful, let's say, that we can get at

least to Miss Cassin today and finish with Mr. Kelley and Mr. Bailey first thing Friday morning.

MS. COTTINGHAM: Well, I'm going to impose a change in the way we've done the clock in order to keep us on the straight and narrow. We're not going to stop the clock for back-and-forth discussions and changing, so we're going to keep the clock running all day today because we don't have much more than eight hours between now and noon tomorrow for testimony. So that should keep you a little more on your toes, and I'm sorry to have to do that, but you've been very good on the clock, I've been amazed it's been working as well as it has for this.

MR. POULIN: And if you would like, Your Honor, I can eliminate that one-minute delay or shorten it if you think that would be helpful.

MS. COTTINGHAM: No. I think that's fine.

With that, we'll take about a 10-minute break and everybody can get organized and we'll start up with the next witness.

MR. PEARCE: Mr. Cheyne, beginning the direct testimony of Michael Cheyne.

MS. COTTINGHAM: I'm going to go back on the record for just one thing. When you file the draft findings of fact and conclusions of law, and I won't memorialize this, but I would like to get them

electronically, too.

(Whereupon, a recess was taken.)

MS. COTTINGHAM: Be seated. We'll go back on the record. Mr. Pearce, if you would call your next.

MR. PEARCE: The port calls Michael Cheyne.

MR. STOCK: Ms. Cottingham, at this point, I am going to move to strike Mr. Cheyne's prefiled testimony from the record. And I would refer the board to his prefiled testimony and the table of contents, which is the first two pages of his prefiled testimony.

Mr. Cheyne's prefiled testimony has nothing to do with the issues that are before this board with respect to whether there's reasonable assurance that this project will not result in a violation of state water quality standards.

The board has now granted the summary judgment motion on the SEPA issues, and while some of these statements in Mr. Cheyne's testimony, prefiled testimony, may have been relevant to the SEPA issue, that is no longer before the board, given that summary judgment has been granted on that issue.

None of the items specified here in Mr. Cheyne's prefiled testimony are relevant except for the last item on page 8, "No current plans for redevelopment of borrow sources." Mr. Cheyne is contending that there isn't any

current plan for redevelopment of the borrow areas, a point that Mr. Rozeboom spoke about in his testimony.

So ACC requests that the prefiled testimony of Mr. Cheyne be stricken and that Mr. Cheyne be precluded from testifying with respect to any of these items except the item on page 8.

MS. COTTINGHAM: Mr. Pearce.

MR. PEARCE: Thank you, Ms. Cottingham. Many of the documents attached to Mr. Cheyne's, well, referred to in Mr. Cheyne's testimony, are background. The board can read that. They're clearly relevant to the project and how the project has undergone environmental review. We're really here on environmental issues.

In particular, the documents such as the EISes talk about - which have already been litigated and found legally adequate - talk about activity levels at the airport, expected activity levels. That is directly relevant to whether there will be any violations of water quality, because, as we heard from Mr. Smith yesterday, it is the activity levels at the airport that create metals on impervious surfaces, not the impervious surfaces themselves, so the activity levels are important, and it's important for the board to have that information in front of it.

The records of decision by the FAA are also

important, because not only do they talk about expected activity levels, but they talk about how the FAA has implemented its wildlife hazard policy with respect to this particular project.

And I would urge the board to accept Mr. Cheyne's testimony, give it the weight the board believes -- accord it the weight that the board think it deserves.

MR. STOCK: Mr. Pearce just said that this is relevant to the issue of the environmental review that this project has gone through. Given SEPA is no longer an issue before the board, there is no relevance to the issues specified here. It's not relevant to the issue of whether this project is going to result in a violation of water quality standards.

In terms of justifying dumping into the record all of these previous environmental reviews on the basis that it relates to the activity level at the airport, broad general statements about activity levels on impervious surfaces is not competent evidence as to the level of pollution that's going to be generated by adding a third runway. There hasn't been any testimony in that regard. And the broad general hearsay statements in these documents, if there are any relating to the activity level, simply is not competent evidence.

And so on that basis, on relevancy, the lack of

competency of the evidence presented, ACC requests that the prefiled testimony be stricken and Mr. Cheyne be precluded from testifying on those issues.

MS. COTTINGHAM: Let me ask a question as it relates to the exhibits. Are any of the environmental documents, the SEPA documents, stipulated as exhibits down in the --

MR. PEARCE: They are exhibits. We would ask the board to take into the record volume 1 of the FEIS and volume 1 of the supplemental EIS for the discussion of the background, for the discussion of what the activity is expected to be at the airport.

MS. COTTINGHAM: Are they a numbered exhibit or is the only place --

MR. PEARCE: They are a numbered exhibit and there is only a hearsay objection to them, after the meeting with the ALJ, there is no relevancy objection to them.

MR. STOCK: And ACC will maintain that hearsay objection. What Mr. Pearce just said is the port wants the board to consider the FEIS and the supplemental EIS for the truth of the matter asserted with respect to activity levels, and that is not competent evidence for that purpose. He also said that he wanted the board to consider it for background information. Again, that is

not relevant to the issue that is before the board. And so we will maintain our hearsay objection on the FEIS and the SEIS and ask that the board not consider it for the truth of the matter asserted.

MR. PEARCE: I can certainly lay a foundation for hearsay.

MS. COTTINGHAM: The board is going to take about a 2-minute recess. We'll be back in a minute.

(Whereupon, a recess was taken.)

MS. COTTINGHAM: We'll go back on the record. The board is going to strike the prefiled testimony of Mr. Cheyne. The board will allow Mr. Cheyne to verbally testify on the issue of the borrow pits. And the board will overrule the objection, the hearsay objection, on the environmental documents, the FEIS and the supplemental EIS. The board has already ruled on issue number 14, already found that those documents are adequate and they're the type of information that the board generally relies on and, under the board's rule, will be admitted.

MR. PEARCE: Can I ask Your Honor about the record of decision from the FAA, because they are very important in determining, in showing how the FAA has implemented the wildlife hazard policy.

MR. STOCK: Well, we can reargue what we just

argued and I'll make the exact same arguments.

MS. COTTINGHAM: And it is a numbered exhibit?

MR. PEARCE: It is a numbered exhibit.

MS. COTTINGHAM: And it has a hearsay objection?

MR. STOCK: I understand that the wildlife hazard plan is part of the NRMP and so, to that extent, that's already before the board, and so if that's the basis for bringing in the record of decision, there's no basis for bringing in the record of decision.

MR. PEARCE: Actually, the basis for bringing it into the record is it shows what the FAA has required with respect to that advisory circular. There is a hearsay and relevance objection about the FAA's record of decision. The FAA's amended record of decision, which incorporates the earlier record of decision, there is only a hearsay objection. Those are both clearly public records and admissible pursuant to Evidence Rule 803.

MR. STOCK: We will maintain our hearsay objection and, again, a relevancy objection. What is now before the board just doesn't have any relevance, the record of decision.

MS. COTTINGHAM: I'm going to recognize the hearsay objection on the FAA record of decision, but I am going to allow it in for background purposes, not for the

truth of the matter asserted. And I would like from you, Mr. Pearce, the exhibit numbers for the environmental documents and the FAA documents, the record of decision.

MR. PEARCE: I can give you those right now if you'd like.

The final environmental impact statement is Exhibit 1069.

MS. COTTINGHAM: Okay.

MR. PEARCE: The supplemental environmental impact statement is Exhibit 1081.

MR. STOCK: And you're just asking for volume 1?

MR. PEARCE: She just asked for the exhibit number.

MR. STOCK: But in terms of what's being admitted, it's just volume 1?

MR. PEARCE: Volume 1 is really what's necessary. All the appendices are background for the discussion in volume 1.

The July 3rd, 1997 record of decision from the FAA, which talks about the advisory circular and how they're going to administer that, is Exhibit 1081.

MS. COTTINGHAM: 1081?

MR. PEARCE: Yes -- I'm sorry, it's 1086. 1081 is the SEIS.

MS. COTTINGHAM: Let me ask a question, the appendices of volume 1 of the SEIS are also part of Exhibit 1081 or are they separate exhibit numbers?

MR. PEARCE: They're also part of that, but the only thing we're really interested in the board taking a look at is volume 1.

MR. STOCK: And ACC would like the opportunity then to counter designate in that exhibit those portions of the FEIS that have public comments and agency comments.

MS. COTTINGHAM: Are they appendices?

MR. STOCK: Yes, they are.

MS. COTTINGHAM: So we'll allow the entire Exhibit 1081. I will overrule the hearsay exemption for all of it.

MR. PEARCE: The August 9, 2001 FAA record of decision, the amended record of decision, is Exhibit 1270.

MS. COTTINGHAM: Okay.

And with that, the court reporter will swear in the witness.

MR. STOCK: I'm sorry, but this amended record of decision, August 9, 2001, as I recall it, it didn't have anything to do with the hazard wildlife management plan.

MR. PEARCE: It has to do with activity levels at the airport.

MR. STOCK: But that is not the basis upon which the board ruled. That's not my understanding the basis upon which the board ruled, so the amended record of decision, Exhibit 1270, has no relevancy.

MR. PEARCE: There's no relevancy objection to 1270. They have never made a relevancy objection to 1270 until we were bushwhacked this morning, Your Honor.

MS. COTTINGHAM: It was a hearsay objection earlier.

MR. PEARCE: That's correct.

MR. STOCK: And we will continue to assert the hearsay objection.

MS. COTTINGHAM: Right. And I am recognizing that and allowing these two documents in only for background. Is that okay?

With that, we'll have the court reporter swear in the witness for the limited testimony on the borrow sites.

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MICHAEL CHEYNE, having been first duly sworn on oath or affirmed to tell the truth, the whole truth and nothing but the truth, testified as follows:

EXAMINATION

BY MR. PEARCE:

Q. Good morning, Mr. Cheyne. Could you give your name for the record and spell your last name.

A. Michael Cheyne, C-H-E-Y-N-E.

Q. What is your current employment, Mr. Cheyne?

A. I work for the Port of Seattle, SeaTac International Airport, I'm the director of planning.

Q. Could you give us a brief description of your work experience in project management and planning.

A. I am a certified project manager through the Project Management Institute. I have been doing project management, I guess, for 20-some years. I've been involved with the project at the airport, the master plan projects, particularly the third runway project, as the program lead, since 1997 and have been working as program lead for the third runway project since that time until November of last year.

Q. Could you look at Exhibit 1023, the first page. I believe it's right here.

A. Yes.

Q. Is that a copy of your professional resume'?
A. It is.
MR. STOCK: Exhibit 1023? I have that as Mike Bailey's.
MR. PEARCE: There are a number of resume's behind that exhibit. They are all stipulated, Your Honor.
Q. Mr. Cheyne, could you explain to us whether the port has any current plans for redevelopment of any of the on-site borrow source areas?
A. No, not at this point. The issue of borrow sources at the airport is similar to issues related to development of any vacant properties at the airport. At this point, there are no specific plans for redevelopment of those properties.
MR. PEARCE: Those are all the questions I have for Mr. Cheyne.
MS. COTTINGHAM: Mr. Young.
MR. YOUNG: I have no questions.
MR. STOCK: I have a few questions.

EXAMINATION

BY MR. STOCK:
Q. Mr. Cheyne, if you'll turn to Exhibit 45, and the notebook is right down there beside you, and it's flagged

for you, Exhibit 45. And if you'll turn over to the last four pages of Exhibit 45. The first few pages is a letter from Northwest Hydraulic Consultants, and attached to that letter is a Port of Seattle Commission agenda; is that correct?

A. It is.

Q. And that agenda is dated October 16, 2001?

A. Yes.

Q. And you received a copy of this agenda, did you not?

A. Yes.

Q. And you also attend on a regular basis the Port of Seattle Commission meetings; is that right?

A. Yes, regularly.

Q. And with respect to the agenda for the November 13 meeting, under the subject, isn't it true that the agenda proposed that the commission execute an amendment to the September 4, 1997 interlocal agreement between the Port of Seattle and City of SeaTac regarding allowed uses within the aviation commercial and aviation operation zone?

A. Yes.

Q. And if you'll turn over to the third page of the agenda, isn't there two-thirds of the way down more detail with respect to what that agenda item is?

A. It appears to do so, yes.

Q. And part of that agenda item, the amendment, calls for amending the interlocal agreement and stipulating with the City of SeaTac that, the first bullet item, "The port shall appropriately mitigate borrow areas and reclaim and consider economic development of the areas"; is that right?

A. That's what it says.

Q. All right. Let me show you -- I'd like to go ahead and have this marked as an exhibit for identification purposes as 804.

MR. PEARCE: We'd object to this exhibit, Your Honor. It's not on the exhibit list, it's not disclosed.

MR. STOCK: No, it's not on the exhibit list. It hasn't been disclosed. I'm using it for impeachment purposes and I am entitled to do it for impeachment purposes.

MS. COTTINGHAM: I'm going to allow it.

Q. (Continuing By Mr. Stock): Can you identify Exhibit 804, please?

A. It's agreement between the Port of Seattle and City of SeaTac for the development of certain port-owned properties.

Q. And, in fact, this was the amendment to the interlocal agreement between the City of SeaTac and the Port of Seattle that was referred to in the October 16 port

commission agenda; isn't that right?
A. I'm sorry, say that again.
Q. This is the amendment to the interlocal agreement between City of SeaTac and the Port of Seattle that was referred to in the October agenda item; isn't that right?
A. I believe so, yes.
Q. And, in fact, this amendment has now been signed by both the Port of Seattle and the City of SeaTac?
A. It looks like that way. I didn't --
Q. In fact, that's Gina Marie Lindsey's signature on page 8, is it not?
A. It looks like it is, yes.
Q. You recognize her signature?
A. I do.
Q. So there is no question that the Port of Seattle and the City of SeaTac have entered into this agreement?
A. I wasn't aware this had been signed, but, yes.
Q. Were you aware that it was proposed at the time that you filed your prefiled testimony?
A. That we would be doing an interlocal, yes.
Q. Turn over to page 6 of this agreement between the City of SeaTac and the port. And under the paragraph entitled "Marketing," isn't it true that the port has agreed within six months of the effective date of this agreement to prepare redevelopment and marketing plans at its own

expense and promote redevelopment of the site by actively making the site available for lease or purchase?

A. Are you reading from this section?

Q. Yes, I am.

A. Yes.

Q. And that's what the port's agreed to do with respect to borrow sites 3 and 4; isn't that right?

A. Mm-hmm (witness nods head affirmatively), portions of borrow site 3, yes.

MR. STOCK: I don't have any further questions. Well, actually, let me back up. I just saw something that is also interesting.

Q. Under paragraph H, "Future Redevelopment."

A. Mm-hmm (witness nods head affirmatively).

Q. Has the port agreed in this agreement, the last sentence of that provision, "The port shall in good faith pursue having the redevelopment of the property completed within five years of the date of this agreement"?

A. That would be contingent on the outcome of the marketing study.

Q. And the port agreed to that with the City of SeaTac; is that right?

A. That contingent upon whether there is a market for redevelopment, would we pursue that, hopefully, in the future, we will.

MR. STOCK: I don't have any further questions.

MR. POULIN: No questions from CASE.

MS. COTTINGHAM: Mr. Pearce.

EXAMINATION

BY MR. PEARCE:

Q. Could you explain to the board the contingency on the marketing study.

A. Well, at this point, there isn't an understanding of what type of activity could be developed there. The port has many, many acres of property that are vacant now. Vacant property does not mean that property will be developed; it means it's available and we want to try to market it as we do any of our properties.

Q. Are there any actual plans for development on any of these properties?

A. No. We couldn't do any planning until we figure out if there is a market. It's going to be demand driven. At this point, we don't know if there's a market and we don't have any specific plans for development.

Q. What's your understanding about the environmental review for any future projects for these properties?

A. Any project or any development that we do would have to go through subsequent environmental review and meet the mitigation requirements of that development.

Q. Okay. Thank you. Nothing further on redirect.

MS. COTTINGHAM: Any questions from the board?

MR. JENSEN: No.

MR. LYNCH: No questions.

MS. COTTINGHAM: Thank you. You're excused.

MR. PEARCE: The port's next witness will be Mr. Charles Ellingson.

CHARLES "PONY" ELLINGSON, having been first duly sworn on oath or affirmed to tell the truth, the whole truth and nothing but the truth, testified as follows:

MR. REAVIS: I have a handout here which is two or three pages from one of Mr. Ellingson's reports that is marked as an exhibit that I'll be referring to.

EXAMINATION

BY MR. REAVIS:

Q. Would you please state and spell your name for the record.

A. My name is Charles Ellingson, E-L-L-I-N-G-S-O-N.

Q. Now, you are referred to in some documents, probably most documents, as Pony Ellingson; is that right?

A. That's correct. Pony is a nickname.

Q. What is your current employment, Mr. Ellingson?

A. I am a principal hydrogeologist at Pacific Groundwater Group.
Q. How long have you been with Pacific Groundwater Group?
A. Since its founding in 1987.
Q. Is a copy of your CV attached to your prefiled testimony?
A. Yes, that would be attachment A.
Q. Can you give us a brief summary of your professional experience with regard particularly to hydrology and groundwater modelling.
A. I think pertinent to this project with my undergraduate training and experience in unsaturated soil, hydrology and soil physics, measuring many of the parameters that have been discussed, permeabilities and unsaturated flow characteristics. Then in graduate school I spent more time with the theory and the equations describing that kind of flow, including programming and writing equations for computers to simulate the flow of water both in saturated and unsaturated conditions.

I have continued to practice in those areas in my professional career.

Q. Can you give us a brief run-down of your educational background.
A. I have a bachelor of science in geology and geophysics from University of Hawaii and a master of science in hydrology from the University of Arizona.

Q. And do you have any particular professional certifications?
A. I am certified in the states of Idaho and Oregon and have applied in Washington, that is pending. I also have a national certification as a groundwater professional.
Q. Could you describe for us generally, briefly, your experience with computer models as applied to your profession.
A. I have used a wide variety of computer models to simulate groundwater flow. Sometimes it's just an equation that you can do with a calculator and sometimes it's very involved. I have used them for a variety of purposes over many years.
Q. When were you first retained to work on anything having to do with the third runway project?
A. In 1999 I was our project manager under Ecology's, what I call, the Ecology project or the hydrologic studies project. I was project manager of a team to study selected hydrologic effects of the third runway construction for Ecology.
Q. So were you retained by Ecology then at that time?
A. Yes. There was a stakeholder committee that included the port and ACC, but Ecology was the state's project manager for that effort.
Q. Now, did your scope of work change over time with regard

to the third runway project?

A. I ended the Ecology project and was then hired by Earth Tech, who was hired by the port to do low-flow studies. And after getting involved in that, I was subsequently directly retained by the port to continue the low-flow studies.

Q. Now, did you produce a report as a result of your work on behalf of Ecology?

A. Yes, I believe that's a June 2000 report called "Hydrologic Studies Report," something like that.

Q. That's Exhibit 1178. Can you tell us if that appears to be a copy of the report that you just described?

A. Yes, called "SeaTac Runway Fill Hydrologic Studies Report," 1178.

Q. And are your conclusions set forth in that report relative to the work that you performed for Ecology?

A. Yes, they are.

Q. Now, then you described a second phase of your work, I believe, that was done for Earth Tech on behalf of the port. Did you produce a report summarizing your conclusions in that particular topic?

A. I believe our input was maybe an appendix or a memo to Earth Tech's low-flow report, which I believe was summer of 2001, and was the first specific report dealing with low flow.

Q. Let me ask you about what I think is a later report produced in November of 2001.
A. Yes.
Q. Can you tell us what that was and what particular project that was produced as a result of?
A. We were hired to simulate flows through the new embankment fill as a part of the low-flow analysis performed by the port.
Q. I believe that is Exhibit 1305.

MS. OSBORN: 1308, I think.

MR. REAVIS: 1308. Thank you.

Q. Does that appear to be a copy of your November 2001 report?
A. This appears to be the low stream flow analysis large report. Our report was appendix B to this low-flow report.
Q. I think there is another exhibit, and that's what I'd like to refer you to, which is 1305.
A. Yes, 1305 is our input into the December low-flow report produced by the port.
Q. So 1305 is your report and that was incorporated in the later low-flow report; is that right?
A. Yes.
Q. Now, what I'd like to do then is have you discuss the modelling work that you did, briefly, on the embankment.

And if you would, refer to this handout, which is a page from the low-flow report itself, which is 1308. And there's a chart there that is the portion that I'd like for you to refer to. This is part of the handout.

A. The drawing on the last page of the handout here is a graphic demonstrating how our work was coordinated with other modelling efforts in the low-flow project. The part inside the hatched area is hours and the entire process is all the boxes. The entire process began with an HSPF model run that provided us - meaning Pacific Groundwater Group - two time series. We got runoff from impervious surfaces and we got infiltration into pervious surfaces. Then that was handed to us as a series of hourly values for 11 model years.

The first box in our scope of work was then to pass that runoff and infiltration through an additional filter wherein we used the permeability that we calculated for the fill to figure out how much of it was actually going to sink in the ground. And that was a lower permeability, therefore, we calculated more runoff in this step than was handed to us.

We took the amount that we thought was going to infiltrate and we modeled it, we predicted the way, the timing of its movement through the new fill.

Then we come down to the third box inside our area,

and that is the description of the Slice modelling, which accumulated those vertical flows along the bottom of the embankment, and ultimately to the fourth box, where we multiplied those two-dimensional flows that we accumulated over the breadth of the embankment to come up with the total contribution from the embankment to the low flows.

And we handed that back to the HSPF modelers and they plugged it into their models to simulate the low-flow condition, the future condition.

Q. Okay. Thank you. Can you describe for us, briefly, the specific areas at the airport that you modeled? And I think there's a demonstrative exhibit here, which again is a page from your report, is it not?

A. This is figure 2-1 from our report. It's also attached to my direct testimony, I believe.

The red line on this figure is the new fill. We are looking down on a map, and the existing airport is to the right here. The red line outlines the new fill. So we clipped it out and we managed all the rainfall within the red line.

The other colors on here are the runways in gray, so those are the impervious areas, and the blues and the yellows reflect the different thicknesses of fill that we calculated because that's an important parameter in the

model.

Q. So you used how many models in your work?

A. We used two formal models and complementary calculations.

Q. Now, there's been some criticism raised in prefiled testimony here about the use of two models as opposed to one. Can you explain for us why you decided to use the two models?

A. It was recognized quite early that the HSPF model was not capable of lagging flows that occur as infiltration moves vertically down through tens of feet of unsaturated material. HSPF can delay flows, but it can't truly lag them; it doesn't have the equations in there to deal with that.

In the Ecology study we demonstrated that we think that effect was going to occur, the port recognized that HSPF couldn't simulate it, so we were requested to use those tools, because it was a better tool for the fill condition after the fill was in place to simulate the water flow.

Q. Is it unusual in your field to use more than one model for a particular project?

A. No, it's not unusual.

Q. Let me ask you a couple of questions about infiltration rates, because there's been some testimony about that. And were you here during Dr. Leytham's testimony?

A. No, I was not.
Q. There were some photos presented - have you seen those - of ponding on top of the embankment?
A. I did see those during Dr. Lucia's testimony.
Q. Do you have any opinion about whether or not those photos demonstrate conditions that would be inconsistent with your infiltration parameters?
A. There's no reason I would expect them to demonstrate that it's inconsistent.
Q. Can you explain that for us, please.
A. The permeability parameter that we used for the new fill results in our prediction of about 20 percent runoff, so over the four years of test period, about 20 percent of the precipitation we would predict to run off, so runoff is something that we would expect.
Q. Now, you were here during Dr. Lucia's testimony; is that what you said?
A. Yes.
Q. What I'd like to do is ask you to refer to one of the demonstrative exhibits that Dr. Lucia used, and I think it's behind that one there, figure 6 to Dr. Lucia's report, which is cross-sections of the embankment.
A. Yes.
Q. And I have just a couple questions about that. One is regarding the issue of horizontal versus vertical flows,

Hydrus 1D versus 2D. Can you just explain for us what, if anything, those show to you about that particular issue?

A. Yes. Dr. Lucia testified that the model should have been run in a two-dimensional mode, and, yet, this figure clearly shows to me that a one-dimensional approximation is a very good approximation. We modeled it in a 1D sense. The fact that these lines are vertical, that the margins between wetter and dryer areas are vertical, indicates that we can model it in a one-dimensional sense and be quite accurate.

This type of simplification is a foundation of hydrogeologic modelling and is well accepted, and I think these results really support our one-dimensional simplification.

Q. Now, with regard to discussion in Dr. Lucia's testimony about lag time and moisture content of the soil, can you tell us what this figure here in front of you tells you about that particular issue?

A. Yes. I believe it was Dr. Lucia's, as he said, his biggest criticism was the prediction of a lag time after construction before discharge would occur. That prediction is largely based on the fact that they began with a model condition that is virtually bone dry. That is so far outside the realm of reality, that his

modelling -- that leading to that conclusion begins with a flawed concept, it ends up with wrong answers, and his biggest criticism is, therefore, really quite misplaced, it's not a concern at all. His conditions are very inaccurate.

Q. There's another criticism in Dr. Lucia's prefiled testimony relating to what he calls, I believe, ignoring the gravel content of the fill. Now, did you hear his testimony on that and can you explain for us what you see as the difference between your view on that and his view on that?

A. Well, I don't think our views on it are very different now, because in his oral testimony, he testified that, in fact, his approach and our approach result in rather similar characterizations for the fill even though he was unaware of our approach prior to his work on this project. So we took different approaches, had the same concern, the same concepts, but took different approaches to correct for the gravel content, resulted in similar characterizations, so doesn't seem like an issue to me.

Q. Now, were you asked in the course of your work to draw any conclusions about the effect on wetland hydrology of this whole embankment modelling?

A. We made some conclusions regarding that in the Ecology report, and then very late in the low-flow, after the

low-flow work, I was questioned by some of the wetland people about wetland conditions.

Q. Is there a demonstrative exhibit there that you can illustrate that point with?

A. I hope so, yes.

MS. OSBORN: I would object to this line of questioning as -- what we're not sure about is when Mr. Ellingson is talking about the work that he did.

MR. REAVIS: I think he said it was part of his original report.

MS. COTTINGHAM: Why don't you bring that out to clarify.

Q. (Continuing By Mr. Reavis): This work that you actually did relative to wetlands hydrology, when did you perform that work?

A. That would have been as part of the Ecology project in '99 and 2000.

Q. And did you develop your opinions at that time or sometime later?

A. My opinions began to be developed at that time and, you know, I have continued to study it since then.

Q. Can you tell us --

MS. OSBORN: So when did he continue -- what we are trying to determine is at what point in time were his continuing opinions developing? I understand that

this began in 2000 with the Ecology report, but I don't understand what the end point is.

Q. (Continuing By Mr. Reavis): Maybe what I can ask you to do is explain for us your opinions about wetlands hydrology as you expressed them or formulated them at the time of your work for Ecology. Can you do that, separate out the two?

A. They're not separate, so I'll just explain. The wetlands on this drawing occur down here. This soil type down here with this wetland symbol, this is a cross section through the ground, showing the fill, the till, and the wetland soils and Miller Creek there.

This line here, this dark line is a conceptualized version of the water table in the Qva aquifer, so it's the aquifer below this shallow stuff we've been talking about. Note that it's virtually at the ground surface down in these wetland soils. And that's quite a common occurrence.

What that means is that not only is there groundwater coming down off the hillside in a shallow sense, but all of the ground down here is saturated, and there's some, maybe not a lot, but there is some potential for groundwater movement to occur upwards towards the creek here. So these wetlands down here are supported by flows coming off the hillside as well as

deeper groundwater sources.

And my prediction would be that the role of the deeper groundwater source is really to protect them against hydrologic effects that are only subject to local changes, such as the construction of the embankment. I think the embankment will also have some effects, but we're not going to see a lot of change in the wetlands because there are other water sources that stabilize the situation.

Q. Have you done any calculations to determine how much of the water that infiltrates through the embankment passes through the drainage layer and how much goes below the drainage area to the lower aquifers?

A. Yes. I'll use this drawing to describe that. By the way, Hydrus was applied, I hope you realize now, to this portion of the flow field, and Slice was then used to calculate how much moves downward versus how much moves sideways. I don't remember the numbers off the top of my head. I think the downward flow is generally greater but they're on the same order of magnitude. And that, in fact, is the two different time series that we gave back to the HSPF modelers. Part of it was horizontal movement versus the movement that we expect to occur down into the regional watershed.

Q. So what does that allow you then to conclude about the

effect of the embankment on the wetland hydrology?
A. The surface flows I think will extend further into the dry season than they do currently because of the delayed flow in the embankment, but overall, I don't think there will be any measurable effects on the regional water table which also support the wetland functions.
Q. Okay. That's all I have. Thank you.

MR. YOUNG: No questions.

MS. COTTINGHAM: Cross examination.

MS. OSBORN: Thank you.

EXAMINATION

BY MS. OSBORN:

Q. Mr. Ellingson, in discussing permeability parameters, you indicated that you thought in your modelling you indicated there would be about 20 percent runoff; is that right?
A. Yes.
Q. And isn't the amount of runoff an important factor in determining how much water is actually going to infiltrate into the embankment and flow through in the Hydrus model?
A. They're both part of a water balance.
Q. So the amount that you assign to that permeability or the infiltration from permeability is a part of the water

balance consideration, right?
A. They're related, if that's what you mean, yes.
Q. In modelling infiltration of the embankment, did you use a number derived from calibration with data from the existing embankment?
A. No, we did not. Well, we used soil type data from the existing embankment and calculated permeabilities from that data.
Q. You didn't calculate from permeability measured from the embankment itself; is that right?
A. There were no permeabilities measured in the embankment.
Q. Now, in the PGG 2000 model that you did for Ecology, you modeled both existing and future conditions; is that right?
A. Yes.
Q. And in modelling existing conditions, you used a recharge model and then the Slice model, right?
A. Yes.
Q. And the Slice model, as you indicated there, modeled what was infiltrating or seeping down into the deeper groundwater; is that right?
A. Correct.
Q. And the model showed that whatever went into the deeper groundwater was actually lost in the system, it didn't reemerge in the streams; is that right?

A. We made generalizations based on stream flow gain, and in the reach that we measured those in, it appeared that much or most of the water could be accounted for by shallow groundwater movement.

Q. But what I am asking you is, the water that you modeled as seeping down into the lower aquifer, I believe, the till and below, was lost to the system, it was no longer accounted for in the model; is that correct?

A. Well, all of our modelling stops there, frankly. Any subsequent calculations are at this time based on --

Q. I just need a yes or no. It no longer returned into the model; is that right? You identified it as water that was gone.

MR. REAVIS: I think the question is vague as to which model it disappeared from.

Q. You know which model I'm talking about, the existing condition Slice model for the PGG 2000 report?

A. My answer is that in all of PGG's calculations, flow downward through the till is no longer managed by PGG.

Q. Okay. And then in doing the future conditions model for the Ecology report, you used the recharge model, the Slice model and you also used Hydrus 2D; is that right?

A. Correct.

Q. And you used Hydrus 2D because then the future conditions you have to pile the embankment up on top of the slope

and you needed Hydrus to model the vertical flow; is that right?

A. With one clarification. Even in the Ecology project we used Hydrus 2D in a one-dimensional sense so, fundamentally, there was no difference between the approaches.

Q. And then when you went to work for the port and you began to do the modelling that is described here, existing conditions were modeled that didn't use Slice to model existing conditions; is that right?

A. That's correct.

Q. But in the future conditions as described here, you used HSPF, Hydrus and Slice to model future conditions; is that right?

A. Correct.

Q. Thank you. Are you familiar with the port's decision to excavate soils beneath the embankment to increase seismic stability of the embankment?

A. I have read, I believe, a Hart Crowser report on that and a subsequent HNTB Hart Crowser memo.

Q. So you are familiar with that?

A. If that's what you mean.

Q. Was that included in your modelling of the embankment, that excavation of soils?

A. No.

Q. Could you take down the story board that you have right there to look at the -- this is an exhibit submitted with Dr. Lucia's prefiled testimony that you just testified about.

Now, you say that this exhibit indicates that there is vertical flow in the embankment, but don't we actually see lateral flow occurring as water moves -- in the changes of the colors of the line?

A. Minimal.

Q. And you mention that you disagree with the assumption that the embankment will be dry at the time that construction is completed. Did you make an assumption about the conditions, the unsaturated conditions of the embankment in your modelling?

A. We were very careful to --

Q. Actually, Mr. Ellingson, I need a yes or no answer from you.

A. Would you rephrase the question.

Q. Sure. In your modelling of the embankment, you made assumptions about what the saturated or unsaturated conditions were of the embankment; is that right?

A. All models require initial conditions, so you have to tell it how to start.

Q. And that start was the condition that held from that point forward, right?

A. No.

MS. OSBORN: Thank you. That's all I have.

MS. COTTINGHAM: Mr. Poulin, do you have any questions?

MR. POULIN: No questions from CASE.

MS. COTTINGHAM: Any redirect?

EXAMINATION

BY MR. REAVIS:

Q. You said that the flow downward through the till is no longer managed by PGG. Can you explain for us what you mean by that?

A. The calculated time series -- this arrow right here represents that downward flow to the till and its daily flow rates for 11 years, okay, so each day has a rate. We handed that back to the HSPF modelers, so I stopped worrying about it at that point is what I meant.

Q. With regard to this assumption of initial moisture conditions, I think you said that did not continue throughout. Can you elaborate on that for us?

A. Well, Dr. Lucia's example of that is that his initial moisture condition is very dry and, as you can see, over time, these modeled changes did occur in moisture over time. We started with a much wetter condition and we made sure to not base our conclusions on a modelling

period that were so influenced by the initial conditions. And that was a big mistake here.

Q. Okay. Thank you.

MR. YOUNG: Could I ask one question.

MS. COTTINGHAM: You may.

EXAMINATION

BY MR. YOUNG:

Q. Can you say where this figure 6, the one with the cross-section, what is that from?

A. That is figure 5-1 of our November report with appendix B to the December low-flow report.

MR. YOUNG: Thank you. That's all that I had.

MS. COTTINGHAM: December 2000 or December 2001?

THE WITNESS: December 2001 low-flow report.

MS. COTTINGHAM: Do you have an exhibit number for that?

MR. REAVIS: I got confused earlier. I think the 2001 low-flow report is 1308 and his separate report is 1305.

MS. COTTINGHAM: No further questions from the board members? I have one question.

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EXAMINATION

BY MS. COTTINGHAM:

Q. I think you just answered it. You used the term lag flow and delay, implying that they were different, and I assumed that the difference has to do with the assumptions that start on the dryness, whatever, the nature of the fill in your model. Do you mean different words when you say lag and delay?

A. Are you referring to my description of how Hydrus and HSPF can simulate these things differently or --

Q. You said because HSPF was inadequate to deal with lag flow, it can delay it but not lag.

A. Can I draw a picture to describe that.

MR. REAVIS: Sure. There's I believe a chart behind all of that. There should be some markers there.

A. Time is across the bottom here and the amount of flow is across the top. HSPF takes a stored amount of water and it can calculate a decrease in that flow over time. What our concept was for the embankment and, in fact, modelling has verified, is that it's not just a delay, but the onset of flow is lagged. So the maximum flow occurs at a time not zero time but some later time. That's what I meant by lagged.

HSPF is limited to this kind of simulation. Hydrus allowed us to simulate that kind of flow.

MS. COTTINGHAM: Thank you. Any other questions?

MR. JENSEN: No.

MR. LYNCH: No.

MS. COTTINGHAM: Any questions as a result of the board questions?

MS. OSBORN: None.

MS. COTTINGHAM: Any questions as a result of the board questions?

MR. REAVIS: No.

MS. COTTINGHAM: Thank you. You're excused.

MR. STOCK: During the transition, I just wanted to clarify that Exhibit 804 was admitted. I had forgotten to formally move after Mr. Pearce's objection had been overruled and I just assumed that it had gone into the record.

MS. COTTINGHAM: It is in the record.

MR. REAVIS: The port calls Linn Gould. I'm sorry, I'm out of order. We're going to Mr. Stubblefield first.

WILLIAM STUBBLEFIELD, Ph.D., having been first duly sworn on oath or affirmed to tell the truth, the whole truth and nothing but the truth, testified as follows:

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EXAMINATION

BY MR. PEARCE:

Q. Good morning. Could you state your name and spell your last name for the record.

A. Yes. My name is William Stubblefield, S-T-U-B-B-L-E-F-I-E-L-D.

Q. You have submitted direct testimony in this matter?

A. I have.

Q. Is your professional resume' attached as tab A to that testimony?

A. It is.

MR. PEARCE: And I would note for the board that it's the stipulated exhibit, it's in 1023.

Q. Could you briefly describe your educational experience for us.

A. Yes. I have a bachelor's degree in biology and chemistry and that I received from Eastern Kentucky University. I have a master's degree in toxicology and toxicodynamics that I received from the University of Kentucky, and I have a Ph.D. in environmental toxicology that I received from the University of Wyoming.

Q. Could you briefly describe your professional work experience.

A. Certainly. I worked for approximately five years between my master's and my doctorate degree for Exxon

Corporation. I worked, subsequent to completing my doctorate degree, for Mobay Chemical Company and then I've been at ENSR Consulting for 16 years, and also have an adjunct faculty position at Colorado State University.

Q. Could you explain to us in layman's terms if possible how ambient water quality standards are developed?

A. Sure. Ambient water quality criteria are established on the basis of a procedure that was developed in 1985 by the U.S. EPA. Briefly, it involves the development of laboratory toxicity data, laboratory toxicity tests that are conducted. The data are arrayed and a criterion is developed from the statistical procedure from that data set, so basically it's based on laboratory data.

Q. What type of water is used to develop those ambient water quality criteria?

A. The water that is used in those tests is almost always a very clean, very pristine water that is a laboratory water. It's very low in organic carbon content, it's very low in dissolved solids, and the reason for that is we want to minimize things that can affect the results of the toxicity tests.

Q. Could you contrast that for us to the development of a water effects ratio?

A. Certainly. Water effects ratios is a procedure for

modification, if you will, of a national criterion, and it is done by comparing toxicity test results that have been generated using the laboratory water, the clean pristine laboratory water to a site water, which would be water literally taken from the site of concern. And that water would reflect whatever the constituents are in that water, including organic carbon, including suspended solid loads and all of the associated parameters that exist in that site water.

Q. Why are organic carbon and suspended solids important?

A. Well, those are two, among others, of the parameters that can in fact affect toxicity test results. They can modify the toxicity or the bioavailability, if you will, of the material to the organisms, and it results in a difference in the data from what you would get in a standard laboratory test, the likes of which are used in deriving the criterion.

Q. Are these site-specific studies recommended by EPA?

A. Absolutely. Since the beginning of the development or since EPA first put out the guidelines for deriving criteria, it was noted in there that there are cases by which it may be necessary or desirable to develop site-specific criteria as opposed to relying on the more general national criteria.

Q. In your opinion, are they less protective than the

published ambient water quality standards?

A. They're exactly the same because they are a modification of the existing criteria.

Q. What do you get at the end of the study? You said you get a ratio; how is that applied?

A. As I said, in developing a water effect ratio, what you do is you run side-by-side tests, tests between a laboratory water, which is identical to that used in deriving the criteria originally, and you're comparing that to a test that's run in site water, which is water that is literally taken from the site, brought into the laboratory and tested. The end points of the test are what, at least in this case, are called acute end points are LC_{50}s. It's the concentration that is lethal to 50 percent of the organisms contained in those tests.

You ratio the results of those two tests. In other words, you look at the results you got from the site water and you compare that to the results you got from the laboratory water, and then that ratio is used to modify the national criterion. So you basically just multiply it times that value, what the original standard value was.

Q. And how are they applied in a regulatory setting; how are these ratios applied in a regulatory setting?

A. They are used for deriving site-specific criterion.

Q. Could you give us an example of, say, if the ambient water quality criteria is 2 and if the water effects ratio was 3, what would your standard be that you would have to meet?

A. In that particular case, the national standard or the, excuse me, the national criteria or the state standard would be 2. If you had a water effect ratio that was derived from the lab data of 3, then the 2 would actually just be multiplied together, and so you would modify the state standard to be 6 in this particular case. So it's merely an arithmetic movement of the value.

Q. Have there been any range finding or WER studies done at the airport?

A. Yes, there have, there was a series of studies that were run by Parametrix a few years ago, looking at potential water effect ratios in Walker, Des Moines and Miller Creeks.

Q. Are those the types of studies that you routinely rely on in your professional work?

A. Those are certainly the range-finding studies that we would do at any site.

Q. Could you look at Exhibit 1118.

MR. STOCK: We have an objection on hearsay grounds to Exhibit 1118. This is a Parametrix document and Mr. Stubblefield is not with Parametrix.

MS. COTTINGHAM: The burden shifts to you.

Q. (Continuing By Mr. Pearce): Is this the type of document that a reasonable scientist would rely on in studying water quality?

A. Certainly. This is a laboratory data report from the laboratory that conducted the studies.

MR. PEARCE: I believe that meets the board's hearsay rule.

MR. STOCK: Well, actually, simply because an expert can rely upon incompetent evidence to form opinions doesn't mean that that evidence gets admitted for all purposes. The fact that he as an expert can rely upon hearsay evidence doesn't overcome the admissibility issue of the hearsay, so the hearsay objection still is appropriate. Right now it can be used for context and background, but it cannot be used for the truth of the matter asserted simply because he, as an expert, relied upon the hearsay.

MR. PEARCE: I don't think that's what he said. I think the board's rule is whether a reasonably prudent person would rely on this type of document in the conduct of their affairs. And I think that's exactly what the testimony shows. Scientists rely on this, I mean, they're the only people that really read them.

MR. STOCK: It's still hearsay and it is being

offered for the truth of the matter asserted, so I would continue to assert the hearsay objection.

MR. PEARCE: That's correct, it is certainly hearsay, and under Evidence Rule 703, our expert witness can clearly rely on it, whether it's admissible or not, but it's also, I believe, admissible under the board's rule of evidence 371-08-500, so evidence including hearsay evidence is admissible to the board if, in the judgment of the presiding officer, it's the kind of evidence in which reasonably prudent persons are accustomed to rely in the conduct of their affairs.

MS. COTTINGHAM: I'm going to allow the evidence in and the board will give it the weight that it deems is appropriate.

Q. (Continuing By Mr. Pearce): Is this one of the water effect ratio -- well, could you identify this for us, please, Dr. Stubblefield?

A. This is a report generated, as I said, by Parametrix entitled "Water Effect Ratio Screening Study at Seattle Tacoma International Airport, Toxicity Evaluation of Site Water" dated February of '99.

Q. And could I also ask you to look at Exhibit 1120. I apologize, it's not in the same volume, it's in the next volume.

MR. STOCK: Ms. Cottingham, ACC asserts a