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STANSTED AIRPORT GI PUBLIC INQUIRY

held at
Endeavour House
Stansted Airport
Essex

on Thursday, 5th July 2007
commencing at 10.00 am

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A P P E A R A N C E S

The Inspectors:

Mr Terry Phillimore
Mr Alan Boyland

For BAA:

Mr Hereward Phillpot

For Stansted Airlines Consultative Committee:

Mr David Holgate [not present]

For National Trust:

Mr D Smith [not present]

For Uttlesford District Council, Essex County Council and Hertfordshire County Council:

Mr Tom Hill
Ms Lisa Busch

For Stop Stansted Expansion:

Mr Paul Stinchcombe
Ms Sarah Hannett

For Saffron Walden District Friends of the Earth:

Ms Pat Elliott

Thursday, 5th July 2007

1

2 (10.00 am)

3 MR BOYLAND: Good morning, ladies and gentlemen. The
4 Inquiry is resumed. I trust everybody had either
5 a productive or a restful break or both. Are there any
6 procedural matters before we carry on?

7 MR PHILLPOT: Sir, just one matter, if I can mention it. It
8 is to do with programme. I don't want to deal with
9 programme substantively on the floor of the Inquiry,
10 but, sir, just to let you know, there are discussions
11 taking place between the parties and the programme
12 officer outside of the Inquiry, I think principally
13 related to two matters. At the moment there is only one
14 day set aside for surface access and one day set aside
15 for the National Trust. I think that is being taken up
16 outside the Inquiry.

17 MR BOYLAND: Yes, I had already picked up the service access
18 point. Obviously unless there is very substantial
19 agreement, then that is not going to be sufficient.

20 MR PHILLPOT: Quite. I don't want to take up Inquiry time
21 dealing with it now but it is right it is aired so you
22 are aware of it. It is going to be pursued outside the
23 Inquiry.

24 MR BOYLAND: That's fine. Anything else?

25 MR HILL: Not from me, sir.

1 MR BOYLAND: In that case we carry on with the case for BAA
2 and Mr Pratt. Mr Phillpot.

3 MALCOLM PRATT (called)

4 Examination in chief by MR PHILLPOT

5 MR PHILLPOT: Thank you, sir. I am going to introduce
6 Mr Pratt from his main proof of evidence on page 1.

7 Your name is Malcolm Pratt, is that right?

8 A. Correct.

9 Q. You tell us you hold the degree of Bachelor of Science,
10 First Class Honours, in industrial chemistry. You are
11 a European chemist, chartered chemist, chartered
12 environmentalist, a Fellow of the Royal Society of
13 Chemistry and a Fellow of the Institute of Environmental
14 Management and Assessment, is that right?

15 A. That's right.

16 Q. You are also a member of the United Kingdom
17 Environmental Law Association and the National Society
18 for Clean Air.

19 MR HILL: I am not sure Mr Pratt is switched on.

20 MR PHILLPOT: If you could find your microphone and pull the
21 switch towards you.

22 MR BOYLAND: I am sure he is very switched on but the
23 microphone may not be.

24 MR PHILLPOT: At 1.2 you explain your experience and you
25 tell us you are a technical director of

1 Entec UK Limited, and you explain the nature of the work
2 you have undertaken, and at the end of that paragraph we
3 note you have given evidence in a number of public
4 enquiries including Manchester second runway and
5 Heathrow Terminal 5. Is that right?

6 A. Correct.

7 Q. Also you explain that you either prepared or assisted in
8 the preparation of the air quality sections for the
9 environmental statement of the Manchester runway 2,
10 Stansted 15 plus and Stansted G1?

11 A. That is also correct.

12 Q. Thank you. We have from you I think six main documents,
13 BAA/4/A to F, and in addition I would just like to touch
14 on a couple of other documents. You have put in
15 an addendum to BAA/4/F.

16 Sir, I hope that has reached you?

17 MR BOYLAND: Yes, it has. Thank you.

18 MR PHILLPOT: I would just like you to briefly explain what
19 the addendum is, what changes, and why.

20 A. Right. The addendum related primarily to two graphs,
21 figure R3, 3A and B. In 3A, because of the nature of
22 the data we have there are a number of different periods
23 so I have normalised them to a single period, which
24 is -- I think it is 16th January through to the end of
25 April. So it was consistent on all the monitoring

1 sites. That was really required, because we had some
2 discussions outside the Inquiry about the two sets of
3 data for Shell House, and one set was withdrawn, which
4 covered a shorter period. So when that came out, which
5 is the only difference in the figure R3B, it was
6 necessary to make those other adjustments to 3A.

7 Q. I see. So figure R3B, we have two lines rather than
8 three?

9 A. Yes.

10 Q. Then tables R1 and R2 have been modified. Can you just
11 explain briefly the changes there, please?

12 A. Yes. I incorrectly put some figures in essentially
13 columns 3 and 4. I actually inverted the --

14 Q. Sorry. Is this on table R2?

15 A. On R2, yes. There were four dates in April, I managed
16 to invert them. So the numbers are right but they are
17 in the wrong order. So I corrected that. That relates
18 substantially to the last four entries in columns 3 and
19 4.

20 MR BOYLAND: Can I just say we appear not to have amended
21 versions of these tables. We did have the graphs but
22 not the tables.

23 MR PHILLPOT: Oh, well, if I can look behind me and ask that
24 they are copied and provided to you.

25 MR BOYLAND: Thank you.

1 MR PHILLPOT: It is obviously important you have the right
2 data.

3 MR BOYLAND: Just bear with us. I beg your pardon. We do
4 have them.

5 MR PHILLPOT: I am grateful. Would you like Mr Pratt to
6 explain again which numbers have changed?

7 MR BOYLAND: No, I think we can carry on. Thank you.

8 MR PHILLPOT: You have got that. Are there any changes on
9 table R1?

10 A. I just clarified the dates by putting them in dates and
11 months rather than just numbers.

12 MR BOYLAND: Sorry. Just for clarity, these come in the
13 erratum sheets that we have, is that correct?

14 MR PHILLPOT: Sir, my understanding is that what we have
15 that was circulated was a combination of errata and --
16 oh, that may have come in with the errata sheet.
17 I think that's right. It may have come in under
18 a different heading.

19 MR BOYLAND: That's right. Thank you.

20 A. The addendum was just the two graphs.

21 MR BOYLAND: Yes.

22 MR PHILLPOT: I am grateful. That I hope explains the
23 changes to BAA/4/F. Then you have also helpfully put
24 in --

25 MR HILL: I am so sorry to interrupt. I am just trying to

1 make sure I have R2 in its revised form, the correct
2 page. I just wanted to follow what the chain was.
3 I hope this is not an inconvenient point to raise that.
4 Looking at the Takeley column in the revised R2, the
5 second entry, there is a 43 there.
6 A. That was a mistake. The other four numbers in that
7 column are exactly the same, they have just been
8 inverted in the order.
9 MR HILL: I understand.
10 A. The same occurred in column 4. Columns 5 and 6 were not
11 changed. There was again a mistake in the 27th
12 August -- sorry -- 27th April row. The 21.4 replaced
13 the 26.5.
14 MR PHILLPOT: That's in column 2.
15 A. In column 2.
16 MR HILL: That's extremely helpful. Thank you.
17 MR PHILLPOT: Then you have also helpfully put in some
18 errata for BAA/4/A, C and D. I hope those are
19 self-explanatory. I think they are largely updating
20 references.
21 MR BOYLAND: Yes, they are. I confess I have not waded
22 through the document and made the alterations but I am
23 sure we will do so at some stage.
24 MR PHILLPOT: I have, sir. By and large you will find they
25 are updating. We have produced a summary proof. Given

1 there are members of the public here, I presume you want
2 parts of this read out.

3 MR BOYLAND: I think this would be helpful. Thank you.

4 MR PHILLPOT: Now if we turn to your summary proof, please,
5 on page 1, I would be grateful if you could start,
6 please, by reading out paragraphs 2 and 3, which explain
7 the purpose and scope of your evidence.

8 A. Right. It is in three parts:

9 "A. To identify the air quality matters that were
10 covered in volume 1 of the environmental statement and
11 the regulation 19 response, but which are not at issue
12 between Uttlesford District Council and BAA.

13 "B. To deal with the issue of nitrogen deposition
14 which forms the basis of the single reason for refusal.
15 That is derived from the air quality assessment."

16 Q. Just pausing there, we now know, of course, there is
17 also a concern about NOx levels?

18 A. That's correct.

19 Q. Sorry, carry on.

20 A. Lastly:

21 "C. To comment on a number of issues that have been
22 raised including some that question the robustness of
23 the assessment in ES and the context against which the
24 results should be judged."

25 The main body -- in the main body of my evidence

1 I address the air quality matters that are not at issue
2 between Uttlesford District Council and BAA, nitrogen
3 deposition and a number of other issues, including
4 carbon dioxide emissions. With the exception of carbon
5 dioxide emissions, the technical detail on other issues
6 which relate essentially to modelling, monitoring and
7 the application of standards have been addressed in
8 appendices 1 to 3. A summary of my conclusions on each
9 of the issues, however, is also given in section 5.

10 Q. Thank you. You then go on to explain under the heading
11 "Common Ground with the UDC on Air Quality Matters" that
12 of all the matters discussed in volume 3 of the
13 environmental statement, the only air quality issue with
14 the authority is the effect of nitrogen oxides on nature
15 conservation effect. You also set out the reason for
16 refusal.

17 Sir, I was not proposing to ask Mr Pratt to read
18 that out.

19 MR BOYLAND: I think we have rehearsed those fairly
20 thoroughly, thank you.

21 MR POTT: What I was going to do was ask Mr Pratt to read
22 from paragraph 9, summary of your evidence on nitrogen
23 deposition, please.

24 A. "Stansted contributes to nitrogen deposition in the
25 local area principally through dry deposition of

1 nitrogen dioxide arising from nitrogen oxide emissions.
2 The incremental contribution in the ES assessment to the
3 annual nitrogen deposition in 2014, from the G1
4 development is 0.2 kilograms nitrogen per hectare per
5 year, and 0.3 kilograms nitrogen per hectare per year at
6 Hatfield Forest and East End Wood respectively. The
7 deposition rate would be reduced by about 30% if the
8 nitrogen dioxide fraction is calculated by difference
9 with and without the airport sources being present,
10 rather than assuming that the nitrogen dioxide fraction
11 is the same as that of nitrogen oxide emissions from
12 airport-related sources. The deposition rate would also
13 be halved if the deposition rate recommended by the
14 Highways Agency had been adopted.

15 "In the regulation 19 sensitivity tests, the
16 nitrogen deposition increment from the G1 development
17 increases to 0.3 kilograms nitrogen per hectare per
18 year, and 0.4 kilograms nitrogen per hectare per year at
19 Hatfield Forest and East End wood respectively.

20 "Total nitrogen deposition rates are forecast to
21 fall by about 28%, or about 10 kilograms nitrogen per
22 hectare, between now and 2014 due to national and
23 international commitments to reduce emissions of
24 nitrogen compounds. This will reduce the exceedance of
25 critical load by about 100%, from 300% to 200%. Against

1 this falling background, the proposed G1 development
2 would add a very small increment, 0.2/0.3 kilograms
3 nitrogen per hectare per year.

4 "At the annual average rate in the reduction of
5 nitrogen deposition, 0.7 kilograms nitrogen per hectare,
6 the increment of the G1 development is equivalent to
7 a displacement of the reduction by about three months.
8 Even with the proposed G1 development, the nitrogen
9 deposition rates would be significantly lower than they
10 are at present.

11 "The scope of the refusal set out in paragraph 8
12 above is relatively narrow. No actual harm is alleged
13 to either Hatfield Forest or East End Wood. Rather, the
14 reason for refusal states increased pollution could give
15 rise to an increased risk of vegetation damage.

16 "It goes on to assert that insufficient real data is
17 available to ensure an accurate assessment and, as
18 a consequence, inadequate contingency measures for
19 mitigation and/or compensation have been made.

20 "At a meeting at BAA on 5th April 2007, UDC informed
21 BAA that it had asked that National Trust provide
22 an unequivocal letter on its position in relation to
23 nature conservation but that so far as UDC is concerned
24 it wished that BAA rolled forward part 8 of the existing
25 15 plus section 106 agreement."

1 Q. Now, I just ask you to pause there.

2 MR BOYLAND: While we are pausing, can I just check, can
3 people hear Mr Pratt? Yes, at the back. Thank you.

4 MR PHILLPOT: I understand there is a correction to be made
5 to this paragraph, and also there is therefore
6 a corresponding change to I think it is paragraph 4.1.38
7 in the main proof.

8 A. Yes. That's correct. At the time the evidence was
9 written that paragraph was based on instructions, but
10 having checked the meeting notes and reviewed the
11 documents it is clear that this text is not correct.
12 UDC are dealing with air quality in evidence at the
13 enquiry.

14 Q. So, just to be clear, your understanding now is that at
15 that time UDC's position was not that it wished BAA to
16 roll forward part 8?

17 A. That's what I now understand, yes.

18 Q. If you carry on, please, reading from paragraph 15?

19 A. "Part 8", that's of the section 106 agreement, "obliged
20 BAA to submit to UDC for approval a proposal for
21 a baseline study of the condition of flora and fauna
22 within Hatfield Forest, East End Wood and the Fenside
23 within the airport boundary. Proposals for the baseline
24 study required under part 8 were drawn up by BAA's
25 consultant ecologist and agreed with UDC, National Trust

1 and English Nature in May 2004. Baseline sampling and
2 survey work of various types commenced in August 2004
3 and continued in 2005.

4 "Baseline data were published in September 2006.
5 Work on the follow-up impact studies is currently in
6 progress and it is intended this will be complete for
7 publication in 2007."

8 Q. I think for reference the reference to baseline data
9 being published in September 2006, is that now CD/137?

10 A. That's my understanding, yes.

11 Q. Okay. I am grateful. Please carry on.

12 A. "In its mitigation package put to UDC on
13 9th November 2005, BAA had not proposed continuing with
14 part 8, given the position that had been reached during
15 the preparation of the ES and reported at
16 paragraph 3.1.4 of CD/6."

17 Q. I don't think we need to read that out. It is a passage
18 I have put in cross-examination. Essentially what this
19 is telling us is the position of the National Trust on
20 nitrogen deposition?

21 A. That's correct.

22 Q. I am grateful. Carry on, please, from paragraph 19.

23 A. "This position, which suggested that the additional
24 nitrogen deposition attributable to G1 application would
25 be very small, is supported by the calculations

1 presented in this evidence. However, in response to
2 a request made by UDC at the mitigation meeting held on
3 5th April 2007 BAA is proposing the following obligation
4 for inclusion in the section 106 agreement, that STAL
5 [Stansted Airport Limited] shall undertake a further
6 study of flora and fauna in Hatfield Forest at 230,000
7 PATMs [passenger air transport movements], and
8 a proposal for that study to be provided to UDC within
9 12 months of the date of the grant of planning
10 permission.

11 "I understand that it is intended that this further
12 study of the condition of flora and fauna in Hatfield
13 Forest, East End Wood and the Fenside would allow
14 an assessment to be made of the changing conditions of
15 those sites over time."

16 A. Thank you.

17 Q. Now I have just one supplementary matter to ask you
18 about on nitrogen deposition and that arises from
19 document 357, CD/357. Could you just take that up,
20 please.

21 A. I have that.

22 Q. Now you will recall the way that this document has been
23 used and referred to in evidence by UDC, and in
24 particular if you turn to page 6, you will see that the
25 figures for NOx concentrations in table 1, given

1 a particular receptor in Hatfield Forest. You will
2 remember from Mr Moorcroft's evidence reference being
3 made to that figure derived from this table.

4 Now turning back to the beginning of this document,
5 we see it is entitled "Estimates of Nitrogen Deposition
6 in Hatfield Forest and East End Wood for Stansted G1
7 Application". Why was this receptor chosen for the
8 purposes of producing this note?

9 A. There was a grid of receptors across the model study
10 area, and this receptor was the closest refined receptor
11 within the modelling study that was on the edge, just
12 outside of the Hatfield Forest. The next 100 metre grid
13 would have been in the forest. That value was selected
14 because it was closer to the airport and therefore had
15 the highest nitrogen concentration which would have
16 derived the highest nitrogen deposition values. So it
17 was a conservative value to check. If we would have
18 taken others within the forest, we would have got lower
19 nitrogen deposition values and obviously the
20 concentrations from which they were derived were also
21 a bit lower.

22 Q. Was it intended to address the issues of NOx
23 concentration levels in Hatfield Forest?

24 A. Not through this, no. NOx is obviously very important
25 in the way the deposition is calculated, but the note

1 was directed at looking at the deposition in the forest.

2 Q. I am grateful. You can put that away now.

3 Back, please, to your summary proof of evidence: we
4 had got as far as other issues, page 3, paragraph 22.
5 I would be grateful, please, if you could read from
6 paragraph 22, please.

7 A. "From a review of the various documents prepared by UDC
8 and its advisers, the National Trust and Stop Stansted
9 Expansion, it was evident that there are concerns about
10 the robustness of the assessment presented in ES. There
11 are, in my opinion, some common themes running through
12 these concerns that I would categorise as follows.

13 "Meteorological and airport activity data,
14 monitoring, model verification, general modelling [that
15 is sort of business as usual, up-to-date modelling,
16 roadside modelling] and the applicability of standards
17 and objectives. I would summarise my opinion on each of
18 these points as follows.

19 "In SSE's representation, CD/203, section 3, it is
20 suggested that the model concentrations are
21 underestimating measured concentrations in 2003. This
22 is not correct, because there are no modelled
23 concentrations in 2003. Modelling for 2003
24 concentrations would have required an emission inventory
25 for that year which is not available. This observation

1 was also made in the Bureau Veritas report, CD/144 at
2 page 22.

3 Q. I don't think you need read out all of the references.
4 They are there to be read if necessary. Please carry on
5 with 25.

6 A. "Forecasting air quality is subject to constraints and
7 uncertainty. This was recognised in the ES in the
8 limitations, constraints and assumptions section. This
9 section notes the reliance placed on the forecast data
10 provided by BAA, HALCRO and QinetiQ. These sources were
11 used because in my opinion they were the best available.
12 In the ES we tested the sensitivity of the assessment to
13 changes in the forecast data and assumptions. I am
14 satisfied that the ES assessment is robust and provides
15 a good basis for the consideration of the likely effects
16 from the proposed G1 development.

17 "Activity data. I am satisfied that the assessment
18 is robust and provides our best estimate for future
19 concentrations. Variations in forecast, operational
20 data or assumptions will inevitably increase or decrease
21 future concentrations but not to an extent that would
22 cause health-based objectives to be breached."

23 Q. Just pausing there, just one supplementary question.
24 The forecasts now produced by BAA are indicating that 35
25 MPPA is likely to be reached some 12 to 18 months later.

1 That evidence has been given. What, if any,
2 significance does that have for air quality, if that
3 turns out to be correct?

4 A. Well, the air quality forecasts assume that the 35 will
5 be met in that year. So if we have a lower throughput
6 in the 2014 year, then the aircraft -- the airport
7 contributions will be slightly lower and that will have
8 a small effect on the concentration reported. So our
9 concentrations are effectively slightly too high.

10 Q. I see. Carry on, please, from paragraph 27.

11 A. "When I look at all the monitoring data around the
12 airport, I am satisfied that there is sufficient
13 information to make a judgment on the air quality in the
14 Stansted area. Some diffusion tube concentrations do
15 suggest that the objective values might be approached or
16 exceeded and this is addressed through the review and
17 assessment process undertaken by in this case UDC.

18 "Monitoring has been undertaken where the objectives
19 might apply and not elsewhere, which is common practice.
20 The location of the monitoring site required by the
21 section 106 agreement has been agreed with UDC and the
22 measured concentrations are made available to UDC
23 routinely.

24 "Model verification. The various studies summarised
25 in appendix 1 provide confidence that the model

1 performed as expected, that is the agreement with
2 monitoring data is within recognised levels of
3 uncertainty. There is some evidence to show that the
4 model overestimates concentrations close to major roads
5 and close to aircraft sources. What is important here
6 is to understand whether there is any reason to believe
7 that the model described in the ES and its associated
8 reports will systematically underestimate future
9 concentrations either with or without the proposed
10 development. Using the supporting information which I
11 have briefly summarised in this evidence, I believe that
12 the model performs well and the predicted concentrations
13 provide a robust assessment of the likely effects
14 arising from the proposed G1 development.

15 "Bureau Veritas suggest that there is some evidence
16 that the model is unpredicting. In their conclusions to
17 the regulation 19 response, however, they say that
18 despite these concerns regarding model verification,
19 based on predictions presented by BAAS and our
20 experience of other major UK airports, it is not
21 considered likely that the G1 expansion would cause any
22 exceedance of the health-based air quality objectives.

23 "The view that Bureau Veritas expresses reflects my
24 own. Irrespective of whether the model under or
25 overestimates future concentrations, it is unlikely that

1 any health-based objections would be exceeded as
2 a result of the G1 development."

3 Q. Thank you for that. I want to ask you some
4 supplementary questions about the length of the
5 monitoring period that was used for the model test,
6 because concerns have been raised about that. I just
7 want to ask you first a basic question. What is the
8 purpose of monitoring over a period of time in this
9 context?

10 A. It's to ensure that you are reflecting the variations of
11 weather, meteorological conditions, so you get a good
12 range of frequency of wind speed and direction and other
13 important parameters so that you do not bias your
14 modelling assessment in any particular way.

15 Q. I see. You mentioned wind speed and wind direction and
16 then you said there are some others. What are those?

17 A. Cloud cover and incoming radiation from the sun are used
18 to establish the sort of stability conditions of the
19 atmosphere which are important to the dispersion.

20 Q. Just taking those briefly in turn, so far as wind speed
21 and direction are concerned, if you can take up CD/278
22 and turn to page 94 of that document, you will need that
23 open and you will also need up CD/279, page 88. Set
24 those alongside one another. CD/278, page 94, is giving
25 us the wind rose for the model test period, as

1 I understand it?

2 A. That's correct.

3 Q. CD/279, page 88, is comparing the wind roses for 2001,
4 2002 and 2003?

5 A. That is also correct.

6 Q. I just want to ask you then: in the context that I was
7 putting these questions, which is, as you explained, the
8 importance of capturing variations in wind speed and
9 wind direction, what comment would you make about the
10 model test period?

11 A. I think the model test wind rose shows some detailed
12 differences to the 2001, 2002, 2003 wind roses, but you
13 are seeing a good range of wind speeds and the
14 predominant wind direction from the sort of
15 south-westerly wind quadrant is clearly evident. So I
16 think there is a good distribution there.

17 Q. Thank you. Put those documents to one side now. Then
18 just looking briefly at the other two factors you
19 identified, first of all, cloud cover. In your view is
20 the model test period, October to May, sufficient to
21 capture variations of cloud cover or not?

22 A. You will get a good range of cloud cover in that period.
23 Cloud cover is measured in octants, if I remember
24 correctly. So it is a fairly coarse measurement in that
25 sense, so you will get the full range of expected cloud

1 covers in at that sort of period.

2 Q. The other factor you mentioned I think was incoming
3 solar radiation?

4 A. That's correct.

5 Q. Again broadly the same question: is October to May
6 sufficient to capture variations in that or not?

7 A. Yes. Normally you expect more sunshine in the summer
8 months than the winter months -- not this year
9 perhaps -- but generally speaking, as you get into the
10 sort of spring and summer the levels of incoming
11 radiation are not that dissimilar from the height of the
12 summer and, if anything, you do get much -- when you get
13 more sunshine, you get more turbulence in the
14 atmosphere. So that would tend to lower concentration.
15 So looking at the winter period might have given us
16 slightly less mixing than you might otherwise get, but
17 the key is we compared a seven-month monitoring period
18 and seven-month modelling period. So we are comparing
19 two identical sets of information.

20 Q. I see. Finally on this then, does this seven-month
21 period that has been used in the light of that omit any
22 significant meteorological parameter?

23 A. Not that I have been able to identify.

24 Q. Now just some further supplementary questions on the
25 monitored data and its relationship to the model test.

1 We now have, since I think your evidence was written,
2 new data available for Shell House at 2004. In your
3 BAA/4/F you have produced model test contours in your
4 figures 1 and 2 which show what the model was
5 estimating, as I understand it, for the model test
6 period?

7 A. That is correct, yes.

8 Q. Now the environmental statement has been criticised by
9 Mr Moorcroft in his statement for the lack of a current
10 case. I just want to ask you what would be a current
11 case in the context of this application?

12 A. It is always difficult to be exactly clear, but if you
13 wanted to go for an annual period and the ES was
14 published in April 2006, you are pretty unlikely to get
15 all the data for 2005 on a timescale that would allow
16 you to do the modelling and produce in the ES.

17 So on the timescale we were working on I would guess
18 that 2004 as a base year -- as a current case, in
19 quotes, would have been the year that I would have
20 probably gone for, had a 2004 base case been done.

21 Q. What, if anything, would that have told us in addition
22 to what we know from the model test?

23 A. I think it would tell you very little else. It would
24 obviously, if it was done for a 12 month period, be
25 directly comparable with objectives and standards, but

1 I would be very surprised if the distribution of the
2 contours shown in figures 1 and 2 would have been
3 materially different had they been done for a full year.

4 Q. Now in your BAA/4/F, and I think just for consistency we
5 ought to look at the amended table R1, you have given us
6 the model test concentration for Shell House from 28.42
7 at the end of that table?

8 A. That is correct.

9 Q. And immediately below that you have put the measured
10 concentration, 22.6. Now we note that the periods there
11 are different, because the model test is October 2003 to
12 May 2004, but the measured concentration is January 2004
13 to June 2004. Given the difference in the periods
14 between the model test and the 2004 monitoring data, is
15 it relevant to compare the two?

16 A. Yes, I think it is relevant. There is obviously some
17 uncertainty introduced by the different periods. There
18 is quite a substantial overlap. So I think it shows
19 sort of that the model is performing as we would expect.
20 So I am quite content to say you can look at them in
21 that light. I wouldn't suggest that an accurate
22 comparison, but I think it is a good indication that the
23 model is performing as we would expect.

24 Q. I see. Now one other thing which I just wanted to
25 clarify with you on this. If you go back -- I said to

1 put CD/278 away, inevitably I was too hasty in that. If
2 you go back to CD/278 -- this is the modelling test --
3 and turn to page 49 in that, paragraph 4.2.5 explains at
4 the bottom of that paragraph that the nearest background
5 continuous NOx/NO2 and PM10 monitors to the airport that
6 were operating during the period are at Takeley,
7 operated by UDC, but doubts were raised about the
8 quality of the data in the first few months of 2004 so
9 Takeley data were not used in the analysis. So that
10 explains why Takeley data was not also used.

11 What was the nature of the concerns raised about the
12 quality of the data in the first few months?

13 A. As I understand it, there was normally a two weekly
14 cycle of routine calibrations and for reasons of staff
15 shortages they were not carried out for a substantial
16 period in 2004. I think it went up to sort of May of
17 that year. So Uttlesford I think quite rightly advised
18 caution on their use and because of the length of the
19 period we decided not to use them.

20 Q. So they were not used. Now just to see this in context,
21 if one looks next to CD/281, in the third round updating
22 and screening assessment for UDC carried out by King's
23 College, London, in May 2006, at page 26 of that
24 document one sees NO2 data for Takeley for the period
25 2003 to 2005. Now, there is no qualification given for

1 the data for 2003, but do you understand that there
2 should be?

3 A. Yes. Given what I understand about the Takeley data,
4 I did have an exchange of correspondence with Uttlesford
5 and they confirmed that they hadn't resolved the
6 difficulty. So the qualification should have been
7 applied for the 2004 data in the USA report.

8 Q. Now just keeping that open and looking at that with that
9 qualification in mind, your BAA/4/F, right at the end of
10 that there is figure 2, which is the model test period
11 mean NO2 concentrations for the model test period.
12 I think just to orientate ourselves, the Takeley
13 monitor, whereabouts on the main is that? We see where
14 Takeley is.

15 A. It is actually annotated if you go to figure R1. It is
16 not very well presented but there is a Takeley arrow
17 that goes to the middle and I think it is just round the
18 school.

19 Q. If we look back at figure 2, it is round about where the
20 school is?

21 A. Yes.

22 Q. We can see on the key that the blue line is the
23 20 micrograms per cubic metre contour. Looking at that
24 alongside Table 5, bearing in mind the caveat you have
25 expressed, what comment would you make on what one sees

1 here?

2 A. Well, the modelled concentration at Takeley from the
3 model test is approximately 21, which is -- again I can
4 say it no stronger than it is of the order of the
5 concentrations that appear to be occurring at Takeley in
6 2003, shown as 2004 but it is qualified, and then 2005.

7 So the model is coming up as a number which would
8 not have been surprising at all if those data had been,
9 you know, ratified in the way they would normally be.

10 Q. I am grateful. We can put 281 away now. I just want to
11 go back, please, to your summary proof. I think we pick
12 this up now at paragraph 32 of your summary proof
13 dealing with general modelling, please?

14 A. 32?

15 Q. Yes, please?

16 A. Sorry.

17 "The EIA regulations require an examination of
18 a without development case and this was defined by BAA
19 based on the permitted passenger throughput of 25
20 million passengers per annum and 216,000 movements. I
21 am satisfied that the assessment of this and the width
22 development case, 35 million passengers per annum, was
23 undertaken using the best model that was available. No
24 specific verification of the model was undertaken for
25 near road receptors as there was evidence to suggest

1 that the modelling approach misses out some of the
2 processes, that is vehicle-induced turbulence, that
3 would tend to lower near road concentrations.

4 "The emission reductions between the 15 plus
5 assessment and the G1 assessment was explained in some
6 detail. The Underwood 2006 reference is the CD/278 that
7 we have been looking at... "

8 Q. Thank you.

9 A. "... and reflects the evolution of the methodology.
10 None of these matters impact on the robustness of the
11 assessment presented in the air quality assessment."

12 Q. Now just pausing there, just briefly in their rebuttal,
13 Stop Stansted Expansion produced a letter from CERC.
14 You don't need to turn it up but that reference is
15 SSE/33, annex 2. I understand you sent that letter to
16 Mr Underwood who carried out the modelling work for his
17 response?

18 A. That's correct.

19 Q. I think we have his response in CD/536. Again we don't
20 need to turn that up. I am sure the inspectors have
21 that document. Having read that letter, what is your
22 view in the light of all you have seen about the choice
23 of the model?

24 A. I think on the basis of what I have seen that the
25 modelling approach that was applied to the study was

1 robust and fit for the purpose.

2 Q. Then if we can go back to the summary and carry on
3 reading at paragraph 33, the applicability of air
4 quality standards.

5 A. "The various air quality objectives and limit values are
6 set out in appendix 4. There is no dispute that the
7 correct standards are identified, but there are
8 suggestions that my interpretation on their
9 applicability is not correct. The applicability of the
10 objectives is given in DEFRA guidance TGO/3... "

11 Q. Don't worry about finding the core document. We have
12 that.

13 A. That is 272.

14 "... the salient points of which are set out in
15 appendix 3, box 3.1. I believe the comments I have made
16 are consistent with this advice. The indicative PM10
17 value is correctly described in appendix 3, and while
18 the UK government's position remains unclear on the
19 status of its objective, the EU in its proposed
20 directive favours its replacement by a concentration cap
21 for PM2.5. Similarly the applicability of the
22 vegetation protection limit is subject to some
23 interpretation and became clear from the monitoring
24 criteria. That's in appendix 4 of the directive, for
25 compliance with the limit value. My interpretation is

1 also consistent with that given by others, for example
2 DEFRA 2006.

3 "Against this background I have not misrepresented
4 the applicability of the air quality standards. The
5 methodology to demonstrate compliance with air quality
6 objectives and limit values is based on prescriptive
7 methods and/or relevant exposure criteria. It is not
8 simply a matter of exceeding a measured concentration of
9 a pollutant at any location using any technique."

10 Q. Finally in this document you deal with carbon dioxide
11 emissions. If you could read paragraphs 34 through to
12 36, please?

13 A. "My quantification of the carbon dioxide emissions from
14 the proposed G1 development is broadly consistent with
15 those of National Trust and Stop Stansted Expansion when
16 compared on an equivalent basis. The comparisons I have
17 set out show that CO2 emissions from the proposed G1
18 development are a very small fraction of those emanating
19 from the UK. If the emissions from the proposed G1
20 development were expressed as a fraction of the European
21 and/or world emissions, they would be extremely small.
22 It is worth noting also that in UDC officer's report it
23 is acknowledged that no climate change effects directly
24 linked to additional movements on the existing runway
25 could be demonstrated."

1 Q. Thank you. Now you have also produced a rebuttal and
2 I think also helpfully a rebuttal summary and various
3 parts of that I am going to ask you to read out, please.

4 If you take up your rebuttal summary and turn to
5 page 1, you start off by responding to Mr Moorcroft's
6 main proof of evidence. If I could ask you, please, to
7 read from paragraph 2, please.

8 A. "There is a considerable degree of common ground between
9 Mr Moorcroft and myself. In addition to the points
10 recorded in the statement of common ground the following
11 points emerge:

12 "He appears to accept our deposition calculations.

13 "He accepts the nitrogen deposition methodology will
14 overestimate deposition rates.

15 "He does not dissent from the interpretation of the
16 application of the NOx limit value for the protection of
17 vegetation but leaves it to legal interpretation.

18 "He acknowledges the use of exclusion zones applied
19 by DEFRA.

20 "As to the difference between us, I would summarise
21 the key points as follows:

22 "He differs in his calculation of the rate of
23 decline in deposition rate.

24 "He also relates deposition rates to the lowest
25 critical load value, which he accepts is a worst case

1 assumption.

2 "He compares the results of the deposition
3 calculation by mixing the results between the base and
4 sensitivity conditions. In my view that is not
5 an appropriate comparison.

6 "Critical levels. The extract from the World Health
7 Organisation guidelines make a distinction between the
8 short-term critical level where it is said that a strong
9 case can be made for the provision of such a level, but
10 at present there are insufficient data to provide such
11 levels with confidence, and a clear recommendation with
12 an unqualified identified level as in the case of the
13 annual mean. There was extensive consultation on the
14 scope of work for the assessment, no request was made
15 for an assessment of short-term NO_x concentrations.

16 "The modelled concentration quoted by Mr Moorcroft
17 is taken from outside Hatfield Forest. My evidence
18 shows that the predicted 30 contour in the 35 MPPA case
19 does not extend into Hatfield Forest itself.

20 "Critical load. Mr Moorcroft makes no criticism of
21 nitrogen deposition methodology, nor does he offer any
22 alternative methodology. He acknowledges that my
23 assumption, based on proportionality of NO₂ to NO_x
24 concentrations, will overestimate the airport's
25 contribution to nitrogen deposition. This overestimate

1 would be about 30%."

2 Q. Now in paragraph 9 you deal with the main differences in
3 the approach that you have identified between
4 Mr Moorcroft and yourself. On the first of those, the
5 reduction of the deposition rate, I need not ask you to
6 read that out, because I think Mr Moorcroft accepts you
7 have correctly understood and applied the Highways
8 Agency guidance.

9 On (c), as to whether one can mix base and
10 sensitivity conditions, again I think he accepted that
11 that was not an appropriate exercise. And (b) is
12 concerned with what you compare estimated deposition
13 rates to. Again I think you have made your respective
14 positions clear on that.

15 What I want to ask you about now before we go on to
16 what Dr Haycock has said, some questions about the new
17 data that Mr Moorcroft provided in his rebuttal
18 evidence.

19 Now you will recall obviously from Mr Moorcroft's
20 rebuttal proof that the view he expressed there was that
21 there was a difference of 9 micrograms per cubic metre
22 between what the model was predicting for 2014 at
23 Shell House and what he believed the measured value
24 would suggest. I just want to ask you: in your
25 discussions with Mr Moorcroft outside the Inquiry has

1 the position progressed since then, that starting
2 position?

3 A. Yes. A lot of our discussions outside the Inquiry have
4 been about agreeing monitoring data primarily. As
5 a consequence of that -- and Mr Moorcroft has helped as
6 he provided a recalculation, and I hope I summarise his
7 values correctly. But his figure of 9 has now been
8 reduced to 5 or 6, shall we say, depending on how we
9 round. I am happy to point out where the main changes
10 occur in Mr Moorcroft's rebuttal, if it will help you.

11 Q. Sir, would you find that helpful?

12 MR BOYLAND: It is difficult to tell until we have heard
13 what he says.

14 MR HILL: Can I just say, if it is helpful, we were trying
15 to produce a statement of common ground for you to deal
16 with this. We still hope to do this. We have got
17 a long way down the line, but travelling this week and
18 other things has prevented Mr Pratt and Mr Moorcroft
19 from finalising that exercise. I suspect, and I just
20 offer this as a potential way forward, that if we are
21 going to go through the detailed figures, it may be best
22 to have it in an agreed form.

23 If there are particular points that Mr Pratt wants
24 to draw to your attention, of course that must happen,
25 but rather than Mr Pratt going through Mr Moorcroft's

1 evidence and saying "this is what I think Mr Moorcroft
2 has agreed to change", and me having to say "actually it
3 is not quite right", it is probably going to be more
4 productive for you to have something we have agreed,
5 bearing in mind we are 90% there, agreeing a document.

6 MR BOYLAND: Yes.

7 MR HILL: But, of course, if there are particular points
8 that Mr Pratt wants to draw out or my learned friend
9 wants to draw out, then that must be done.

10 MR BOYLAND: Yes. Certainly if matters can be agreed, then
11 it is much better we deal with them through an agreed
12 statement. If we can concentrate on where there are
13 differences between you, that may be the best way
14 forward.

15 MR PHILLPOT: Exactly. I think for the purposes of
16 examination-in-chief it is sufficient for you to
17 understand two things: first of all, that the
18 headline figure, subject to any other qualifications
19 about it, appears to have gone down from 9 to somewhere
20 between 5 and 6.

21 MR BOYLAND: Yes, I have that point.

22 MR PHILLPOT: The second point is in very broad terms why
23 that is. I think there are two factors. In fact,
24 I would ask Mr Pratt just to explain what those factors
25 are and then the numbers can be dealt with outside the

1 Inquiry.

2 MR BOYLAND: Just briefly, yes.

3 A. I think the two principal changes is there has not been
4 an agreement on the monitoring figure at Hatfield Forest
5 for 2007, which has gone up from 30.8 to 31.1, but the
6 Takeley figure, which is the annual period, has actually
7 gone down. As a consequence that reduces one of the key
8 figures down to 30.2. It was originally 30.9. Then as
9 a consequence of that, when you finished the rest of the
10 TGO3 calculation, your difference comes down and
11 Mr Moorcroft has also taken advantage of some additional
12 information on the background figure, which has gone
13 from 15 to 17.7. And a consequence of all that is you
14 get this reduction on his unknown difference between the
15 background figure he looked at in his evidence and the
16 measured value.

17 MR PHILLPOT: Thank you.

18 MR BOYLAND: That is helpful. Can you go a little further
19 and tell me what difference you attach to the 9 and the
20 5 or 6 now. Is that a significant difference?

21 A. I think I ought to say while I accept the calculation
22 procedure Mr Moorcroft has gone through, I don't accept
23 that it is a correct way to try to assess the modelling,
24 because what Mr Moorcroft is doing, he is effectively
25 developing a model to forecast a future concentration in

1 2014. We have used a very complicated model to produce
2 the same thing and we have differences, and the
3 difference was 9, it is now 6 or thereabouts. It is
4 a question of whether our model is better than their
5 model, so to speak. So while I am happy to agree the
6 figures that TGO3 produces, I wouldn't want the Inquiry
7 to take from that that I agree that that method is the
8 right one to apply. I believe the modelling approach we
9 have used is the right approach.

10 MR BOYLAND: So, put another way, you don't attach much
11 significance to the difference between the two in any
12 event.

13 A. In that sense, no.

14 MR BOYLAND: Thank you.

15 MR PHILLPOT: Thank you, sir. I was coming on to whether it
16 was a good thing to do in due course, but you have
17 raised the point ahead of me.

18 There are two matters I want to deal with in
19 examination-in-chief on this. First is the reliability
20 of the 2007 Shell House data and then we will come on to
21 the methodology more generally.

22 So far as reliability, you will remember I put some
23 questions to Mr Moorcroft in examination-in-chief. One
24 of those was about calibration of the monitoring
25 machinery. Have you been able to confirm that the data

1 has been calibrated?

2 A. Well, we have confirmed that the data has been
3 calibrated; "scaled" was the terminology that Uttlesford
4 normally use. But that is yet to be ratified and it
5 will be ratified in the due process of a six monthly
6 cycle that Uttlesford use and that's not uncommon.

7 Q. Until the data has been ratified, how should it be
8 treated?

9 A. It has to be -- in the jargon it is provisional data.
10 It is used as provisional data. So any conclusions you
11 reach from that data must be provisional as well.

12 Q. I see. Now if we can go to your BA/4/F, and we need to
13 have figure R2 and open alongside that your revised
14 table R2 to make sure we are looking at the right
15 numbers for the right monitoring sites.

16 Now you have selected in your table R2 a number of
17 dates where figures are given for different measuring
18 stations. Just in broad terms, please, what is the
19 point that you are seeking to make with the use of those
20 figures?

21 A. What I was trying to do was to sort of give
22 an indication of the concentrations that were occurring
23 at a point in time, because the time series plots, of
24 which R2 is an example, are quite difficult to follow.
25 So I was trying, and I am not sure I was successful, to

1 sort of give an indication of the difference of
2 concentrations at the different sites at a point in
3 time, and they were selected not at random, but there
4 are lots of other examples within the four months of
5 data where the Shell House site just doesn't seem to fit
6 the sort of patterns that you would expect from
7 a regional perspective.

8 Mr Moorcroft and I have spent a bit of time trying
9 to understand it, but I don't think we had got to the
10 level of understanding that allows us to explain the
11 differences.

12 Q. I see. So what we now have, and we ought to again have
13 this open alongside it, we have got UDC/7/D. That looks
14 at these examples of the point you are making. I just
15 wonder, going through these, bearing in mind they are
16 examples, 28th March 2007, in UDC/7/D, we have now got
17 figure 1, which shows an analysis over seven hours.
18 I just welcome your comment on that, please?

19 A. Right. Well, the table I put together showed a point in
20 time and this graph shows you a sequence. So
21 effectively what Mr Moorcroft has done is expand the
22 time base of my figure R2. What it is showing is there
23 is effectively a sequence of peaks which would be
24 consistent with possibly pollution moving across the
25 countryside passing those monitoring sites at

1 a different time.

2 Mr Moorcroft has helpfully provided some met data
3 for that site which I did manage to have a quick look at
4 last night, for which I thank Mr Moorcroft, and at that
5 time there seems to have been very low wind speed
6 conditions, which would mean not particularly good
7 dispersion, they are at a level that is probably getting
8 close to the cut-off of the anemometer, and wind vanes
9 don't work very well at low wind speeds, they just sort
10 of oscillate so it is very difficult to take directional
11 information from the wind vane at low wind speeds, but
12 the wind vane was showing a direction that is broadly
13 245 through to 317, but mainly in the sort of 219 level.

14 So we are looking at a wind that's probably
15 west-north-west, if my geometry is correct there. So a
16 westerly going through to north-westerly wind. I don't
17 think I can say any more about that.

18 Q. Again if outside the Inquiry you are able to take that
19 further with Mr Moorcroft to agree things, fine.

20 Figure 2 deals with -- that's in UCD/7/D -- 4th
21 April 2007. You see we have figure 2 showing analysis
22 over eight hours and then meteorological conditions for
23 some of those hours. Again any comment on that?

24 A. Well, again you are seeing concentrations at three
25 sites. Shell House does meet, if that is the right way

1 of describing it, the High House site at 6 o'clock, but
2 has quite a different sort of shape to the High House
3 and the Takeley side, which I find surprising. If the
4 pollution say at High House was the source of what was
5 being seen at Shell House, then I would have expected
6 sort of higher peaks in the earlier period and the later
7 period. Again the wind is very, very low speed and the
8 direction is broadly about 320 or so, which again going
9 back to my aide-memoire is just sort of west of
10 north-west. I don't think I could say any more than
11 that.

12 Q. I realise you only just had the meteorological data.
13 That is fine.

14 Then we go on to the next page of UDC/7/D, 27th to
15 30th April 2007. We don't have an equivalent analysis
16 over time there, but we do have some meteorological data
17 and reference to the relationship of that to car park
18 emissions. Any comments on this?

19 A. Well, again in the text at the bottom of the table he
20 has correctly identified these winds are north-westerly,
21 north-north-westerly, north-easterly veering, that sort
22 of thing, so his text is entirely consistent with the
23 table. He makes the observation that these wind
24 directions would tend to take any car park emissions
25 away from Shell House. If I got the geography of it

1 right, I would concur with that. I would just like to
2 check the geography, but I think he is right.

3 Q. Does that deal with the point you were raising in
4 respect of those dates?

5 A. I don't think so, because we have still got -- if I can
6 sort of go to those diurnal plots that were in my 4/F
7 figure -- I suppose I should used the revised one,
8 shouldn't I.

9 Q. Yes.

10 A. R3A of the addendum.

11 Q. Yes.

12 A. I hope I am not telling you things you already know, but
13 so you know, this graph is showing the average
14 concentration in each of the hours from 0 to 24 across
15 the period. So it is the diurnal variation of those
16 concentrations. All but Shell House have the sort of
17 profile that I have seen whenever I have used this sort
18 of data of a sort of a morning peak and an afternoon
19 peak which corresponds to the rush hour. They do change
20 In time, depending whether you are looking at southern
21 England sites or Northern England sites because we in
22 the north probably go to work a bit later than people in
23 the south.

24 Shell House doesn't show that pattern. It shows
25 a smaller morning peak, which is sensible, but then it

1 does not actually show the drop-off in the middle of the
2 day that might be normally seen in these sites.

3 I have done a little bit of further investigation of
4 the diurnal plots and I have looked at the difference
5 between weekends and week days and when there have been
6 classes at the Shell House and when there have not,
7 things like this. There are features that come out of
8 the diurnal plots that you still don't see at the other
9 sites when you look at them on a comparable basis which
10 just makes me feel there is still something unusual at
11 that site, but I have not been able to investigate what
12 it is. I haven't put all those other graphs into the
13 Inquiry, because I didn't think they would provide
14 a clear view of what the issues were, but if you wanted
15 them, I am happy to put them in, but I don't think it
16 would actually provide the clarity that I was hoping
17 for.

18 MR BOYLAND: I think we can live without them. Thank you.

19 MR POTT: That's the view we have taken, sir. I hope that's
20 all right.

21 You have jumped slightly ahead of me, I am afraid,
22 Mr Pratt. If I can just draw you back, we were just at
23 the end of UDC/7/D, looking at the 27th to 30th April.
24 In your BAA/4/F, in figure R2, you see those dates at
25 the end of that graph with the red line representing

1 Shell House peaking above runway and Takeley. When
2 I asked you about whether providing wind speed and
3 relating that to the car park, whether that had
4 addressed your concern, I just want to be clear. Does
5 that explain why Shell House is showing those peaks at
6 those times?

7 A. I don't think we have explained those peaks yet.

8 Q. Just in short, does UDC/7/D deal with the concerns that
9 you have raised about this data?

10 A. I don't think so, no.

11 Q. Fine. We will see if we have misunderstood it.

12 Now next on this I want to ask you to look at the
13 comparison -- I will deal with this briefly -- between
14 the 2004 data from Shell House and the 2007 data from
15 Shell House and the difference between those two and how
16 that relates to other monitoring sites. I just wonder
17 if you can offer your thoughts on that point, please?

18 A. I think the -- if we go back to the diurnal plots
19 figure, R3B --

20 Q. Yes.

21 A. -- this is again the diurnal changing concentration for
22 the two sites which are within the same courtyard. You
23 see the sort of pattern that I would expect in the 2004
24 data, but you are seeing this, you know, much higher
25 middle of the day concentration, which is why I always

1 had some reservations on the 2007 data at Shell House.

2 Q. What about the difference in absolute levels between
3 2004 and 2007 at Shell House?

4 A. Well, clearly that graph does show there are some
5 differences. I have had a look at the differences at
6 other monitoring stations around the area and we
7 mentioned them before: Sawbridgeworth, High House,
8 Shell House and the Takeley site, and sites tend to move
9 in some sort of sympathy, if that's the right word,
10 because a lot of pollution is regional effects, you tend
11 to get a sort of commonality of change.

12 Where you have got a large source, such as the
13 airport, you would expect the High House site to
14 probably be bigger in its changes than other sites.
15 When you look at the changes in comparable periods, the
16 Sawbridgeworth site has actually decreased over the
17 2004-2007 period. High House has gone up in round
18 figures 6%, which is perhaps not surprising, but the
19 Shell House site has gone up 8%. Given its proximity in
20 the forest, I wouldn't have expected the change at that
21 site to have been larger than at Shell House.

22 Q. Sorry. You say larger than at Shell House. Do you mean
23 larger than at High House?

24 A. Sorry. I meant at High House. I did have a look at
25 Takeley, but I have to be very careful about comparison

1 there, because we go back into the period of data where
2 caution is required. Again Takeley is not showing such
3 a large change as High House or Shell House, but that's
4 a little bit tentative because of the health warning we
5 have put on the data.

6 Q. Finally on UDC/7/D, that has investigated the
7 possibility of a local source to explain these
8 surprising anomalies in the data and hasn't identified
9 one. So far as the factual descriptions of the use that
10 take place there, are you content to accept that?

11 A. I am.

12 Q. But are you able to explain why it contains those
13 anomalies there?

14 A. Not at this stage, no.

15 Q. In those circumstances, and bearing in mind the use to
16 which this monitoring data is being put by Mr Moorcroft,
17 how do you invite the inspectors and Secretary of State
18 to treat this 2007 data?

19 A. Well, I think, as I have already indicated, I would be
20 very cautious in the use of the data and the way it is
21 built up to produce a model as I described earlier on.
22 I think it should be treated in that way.

23 Q. So far as the use of it is concerned, you have already
24 given some views on this and how you characterise it as
25 effectively an alternative model. Can you expand,

1 please, just a bit on the nature of the exercise that is
2 undertaken in his rebuttal proof using this data?

3 A. I'm trying to think of an easy way of explaining this.

4 MR HILL: This is explaining the exercise in Mr Moorcroft's
5 proof?

6 MR PHILLPOT: No. It is explaining his view on the nature
7 of the exercise undertaken by Mr Moorcroft.

8

9 A. The approach Mr Moorcroft has used compares some DEFRA
10 background data with some monitoring data and finds
11 there is a difference. He then takes that difference
12 forward into 2014 and wants to apply that to adjust our
13 model concentrations. I am not very keen on that
14 approach, because, first of all, Mr Moorcroft is doing
15 to some extent what he is accusing us of doing, taking
16 a single piece of information and then building a model
17 with it, but that's not quite how I would describe what
18 we have done, but he does build a model based on
19 a single piece of data and then says, "I don't know why
20 the difference is, but I will ignore any reasons that
21 might change in the future and apply it to a future
22 situation".

23 There is quite a lot of sort of detail within how
24 the DEFRA background data is derived relating to
25 meteorology, but we don't concern ourselves with that.

1 We take this figure. We don't know what's causing it.
2 If, for example, there was a contribution in that
3 difference from shall we say vehicle omissions, vehicle
4 emissions are expected to decrease because of additional
5 control devices. That element of the difference that
6 Mr Moorcroft wants to project forward, if it contains
7 road vehicles, ought to reduce by an amount which he
8 doesn't acknowledge should be reduced.

9 So it is just this business of saying, "I don't know
10 the reason why there is this difference but I am happy
11 to assume it applies at a future time", and that's
12 entirely his prerogative, but then when he takes this
13 value forward, he then adds it to our model value, which
14 includes the background aircraft, airport related road
15 traffic and road traffic in general, and if his model of
16 his set amount includes any traffic at all, then there
17 is the potential to do some double counting.

18 Again we tried to avoid double counting in the
19 approach we used. So I just have a nervousness about
20 that approach.

21 Q. Thank you for that.

22 Now on a general point you acknowledge in your
23 evidence and it is acknowledged in the ES that there
24 are, of course, inevitable uncertainties in modelling
25 concentration levels seven years or more into the

1 future. I just want your help with this. How do you
2 invite the inspectors and the Secretary of State to
3 approach the issue of uncertainty in this context?

4 A. The approach that we have taken, and I hope the
5 inspector and the Secretary of State will consider, is
6 that we have tried to use the best data and modelling
7 approach that was available to us to produce our best
8 estimate of where these concentration contours lie.
9 They will be subject to uncertainty, but if you try to
10 apply uncertainty in any way then you have got to apply
11 probability to it, which makes life very difficult to
12 convey.

13 So I think the keys in my mind is there are two
14 elements. We have used the best model to give you the
15 best idea of where the line is and we have looked at the
16 difference between the 25 and the 35 case. If you
17 compare figures 4 and 8 of CD/6, you will be able to
18 look at the positions of the line and see how relatively
19 small -- sorry -- how the distance between those
20 lines change a relatively small amount. I think that's
21 what the inspectors should be taking away, but the
22 difference between the two cases is very small and the
23 modelling approach gives the best estimate of
24 concentration.

25 Q. Thank you. Finally on that point, before we come back

1 to the end of your rebuttal summary, has Mr Moorcroft's
2 analysis affected your professional view as to the
3 reliability of the modelling work that has been done for
4 the purposes of the ES?

5 A. Not at all.

6 Q. Thank you. Now coming back then, please, to the summary
7 of your rebuttal, just to round this off, please, we had
8 got as far as Dr Haycock. If you can read first,
9 please, paragraphs 13 and 14?

10 A. "Dr Haycock acknowledges that nitrogen deposition is
11 part of the general poor situation in southern England
12 and a regional problem. For this reason his evidence
13 does not focus on nitrogen deposition, which is
14 consistent with the views expressed by the National
15 Trust in response to the consultation about the issues
16 that should be addressed in the ES.

17 "Dr Haycock's concerns may be summarised as follows:
18 the application of the NOx air quality limit value and
19 in particular a concern that DEFRA has misunderstood the
20 effect of the EU legislation; the choice of model made
21 by BAA and whether a different model might have been
22 better; the validation of the model used and the
23 reliability of the predictions made; the short-term
24 concentrations of NOx that are and are likely to be
25 experienced in Hatfield Forest."

1 Q. Now so far as the first of those issues about
2 interpretation is concerned, you explain there's
3 a difference. You followed the interpretation of DEFRA,
4 because you have no legal expertise, and you note he
5 does not accept it. I do not need to get you to read
6 that out.

7 Could you, on the issue of atmosphere dispersion
8 modelling, you read paragraphs 16 to 19?

9 A. "Dr Haycock's position on modelling undertaken and
10 reported in the ES appears to be that I have used the
11 wrong model, omitted some emissions, and there is
12 inadequate spatial representation of the concentrations
13 arising from the emissions. I do not accept this
14 position, nor do I believe is it shared by Mr Moorcroft.
15 The view of Bureau Veritas was that the air quality
16 report is thorough overall. They identify
17 an uncertainty in the verification but conclude that it
18 is not considered likely that the health-based
19 objectives would be exceeded based on the model
20 predictions and experience at other airports. There is
21 no criticism of the model itself, the emission inventory
22 or the spatial resolution of the model in respect of any
23 pollutant.

24 "ADMS is a suite of models that are designed to be
25 used for different applications. Much of the detail

1 within the model, however, is common. As a consequence
2 of this, the spatial distribution of concentrations
3 arising from emissions will essentially be the same
4 within each of the models provided a like for like
5 comparison is undertaken. In my opinion, the kernel
6 version of ADMS produces slightly higher concentrations
7 than either ADMS rose or ADMS urban, and hence the
8 approach I have used is more conservative."

9 Q. Then you come on to model validation. You clarify that
10 you understand that relates to verification and you have
11 explained why you rejected those criticisms already. So
12 I have no need to get you to read out those paragraphs.

13 Next, please, paragraph 25 about the list of
14 questions that Dr Haycock submitted?

15 A. "The long list of questions raised and the responses I
16 have provided do not have a significant effect on the
17 model concentrations presented in the ES. The model
18 used provides the best estimate of future
19 concentrations. My opinion on the suitability of the
20 modelling approach used for this assessment has not been
21 changed by my discussions with Dr Haycock or
22 consideration of the questions he raised. I consider
23 that the model concentrations before the Inquiry provide
24 a robust assessment of the likely effect of the
25 development."

1 Q. Just pausing there, have you heard any more from
2 Dr Haycock on the matters he raised in his questions?

3 A. Unfortunately not, and I have sent him a couple of
4 e-mails to remind him we need to talk but that has not
5 happened yet.

6 Q. I see. Then paragraph 26, please?

7 A. "Dr Haycock accepts there is no formal, short-term
8 24-hour average NOx limit for vegetation but he believes
9 the assessment presented in the ES should have addressed
10 this metric. I have explained above why this metric was
11 not addressed and I do not accept that the absence of
12 the 24 hour metric has any significance to the
13 conclusion of the assessments set out in the ES or my
14 evidence."

15 Q. Last, but not least, you come on to Dr Elliott and SSE.
16 If you could read, please, from paragraph 27 to the end,
17 please?

18 A. "Dr Elliott takes a broad view in her evidence and
19 covers some of the same ground as Dr Haycock and
20 Mr Moorcroft. The main thrust, however, appears to be
21 centred on reduction in concentrations from the 2003
22 consent at 25 million passengers per annum, compared to
23 those in the current application, the air quality
24 assessment and modelling, including proposed changes
25 arising from the PSDH work and the effect of expansion.

1 "Dr Elliott queries the reduction in concentration
2 since the previous ES and I have explained the reasons
3 for this in my evidence. These changes simply follow
4 the evolution in the methodology which is still
5 occurring through the PSDH programme. I would expect
6 emission rates and concentration generally to fall
7 through this evolutionary process as better data and
8 methodologies become available.

9 "Dr Elliott raises areas of uncertainty that cover,
10 for example, monitoring the proximity of the M11; the
11 PSDH work and its effect on emissions and
12 concentrations; data used within the model such as fleet
13 mix, thrust settings; road traffic flows; primary NO2
14 emissions from diesel vehicles; new modelling techniques
15 arising out of PSDH work, etc.

16 "The work in the ES was specifically reviewed by
17 Bureau Veritas against the main findings of the PSDH
18 report and their conclusion was that in general terms
19 most of the critical issues identified by the PSDH
20 project have been incorporated into the approach used at
21 Stansted. Importantly, consideration has been given to
22 near field dispersion from jet engines, realistic take
23 off thrust settings have been applied, and the approach
24 used to estimate NOx and NO2 transformation allows the
25 potential impact of increasing primary NO2 emissions and

1 ozone background to be accounted for."

2 "Effect of the expansion. Model concentrations are
3 clearly set out in the ES and compare directly with the
4 relevant objectives in both the 25 and 35 cases. The
5 difference between the cases is also shown. The
6 information in the assessment shows that all the
7 health-based objectives would be achieved and the NOx
8 limit value for vegetation protection is not exceeded
9 within Hatfield Forest or East End Wood."

10 MR PHILLPOT: Thank you very much, Mr Pratt. Those are my
11 questions.

12 Thank you, sir.

13 MR BOYLAND: Thank you. Can I just give the reminder that
14 I forgot to give when we resumed earlier on that people
15 should switch off mobile phones, please, or switch them
16 to silent anyway and also sign the attendance list.

17 Now as far as cross-examination is concerned, my
18 understanding is that only UDC and SSE wish to
19 cross-examine Mr Pratt. I am assuming that it will be
20 in that order, unless anybody suggests otherwise. Very
21 well. Okay. We will adjourn then. We have your list
22 of documents I think for cross-examination.

23 MR HILL: Sir, yes. Can I just add to that CD/144.

24 MR BOYLAND: By all means. Thank you. We will adjourn then
25 until 11.45. Thank you.

1 (11.30 am)

2 (Short break)

3 (11.45am)

4 MR BOYLAND: The Inquiry is resumed. Mr Hill.

5 Cross-examination by MR HILL

6 MR HILL: Thank you very much indeed, sir.

7 Good morning, Mr Pratt.

8 A. Good morning.

9 Q. I am just able to say good morning to you; your
10 evidence-in-chief went on for rather longer than we
11 thought, 50% over your prediction.

12 MR PHILLPOT: I am not sure that's right. My revised
13 estimate was an hour to an hour and a half and I was
14 well within in.

15 MR BOYLAND: Yes, indeed it was.

16 MR HILL: Let us see what progress we can make, Mr Pratt.

17 I know you want to be on your way no later than tomorrow
18 morning.

19 MR BOYLAND: Having made that point, Mr Hill, I am sure you
20 will keep within your own estimate.

21 MR HILL: I am sure I will. I don't think I have strayed
22 over my limit so far in this Inquiry.

23 Mr Pratt, can we look at your proof of evidence,
24 please, page 1? I just want to be sure I understand the
25 terms of your instructions. Paragraph 1.2, last

1 sentence, you tell us there you prepared or assisted in
2 the preparation of the air quality sections for the
3 environmental statements for -- we do not need to worry
4 about Manchester, which you and I know a lot about --
5 Stansted 15 plus and Stansted G1. So that is the
6 current application and the one that was made in 2001
7 and ultimately granted in 2003?

8 A. That's correct.

9 Q. Were you retained by BAA to do any air quality
10 monitoring work between the 2001 planning application
11 and your 2004 instruction for this application?

12 A. I was not, no.

13 Q. Now the focus of my questions not surprisingly will be
14 the NOx concentrations in the vicinity of the airport
15 with and without G1, and their potential to affect
16 adversely the ecological interests particularly of
17 Hatfield Forest and East End Wood. That will come as no
18 surprise to you?

19 A. It doesn't, no.

20 Q. Now there is no dispute between us, is there, as to the
21 ecological importance of the areas I have just referred
22 to. It is not part of your case to doubt the ecological
23 importance of Hatfield Forest?

24 A. Absolutely not.

25 Q. In particular, as you may have heard in the Inquiry when

1 our evidence was called, the status of Hatfield Forest
2 as SSSI and National Nature Reserve and country park all
3 goes without challenge?

4 A. Yes.

5 Q. You are not, as I understand it, qualified as
6 an ecologist?

7 A. That's correct.

8 Q. You certainly don't possess comparable qualifications to
9 Dr Gibson of Natural England?

10 A. I do not.

11 Q. Whilst BAA has employed other professionally qualified
12 ecologists, in the form of Penny Anderson Associates --
13 they have been responsible for chapter 10 of the ES --
14 they don't appear to give evidence at this Inquiry.

15 A. That's my understanding, yes.

16 Q. Now let us see if we can dispose of hopefully some
17 relatively uncontroversial matters. I don't want to get
18 the documents out, I think we will be able to rattle
19 through this.

20 What is clear, Mr Pratt, is there is a national and
21 international consensus that for the protection of
22 eco-systems and vegetation in particular, concentrations
23 of NOx in excess of 30 micrograms per cubic metre
24 expressed as an annual mean should be avoided?

25 A. I presume that's the basis of setting the value.

1 Q. Put shortly, and we can look at your proof in a moment,
2 30 micrograms per cubic metre has been established as
3 the critical level or limit value for NOx with respect
4 to impacts on vegetation?

5 A. That's my reading of the documents, yes.

6 Q. Can we just ensure we are happy with the language that
7 is being used? If you turn to your proof, page 8,
8 paragraph 4.1.15?

9 A. 14 did you say?

10 Q. 4.1.15, page 8, the last paragraph before the next
11 subheading. You draw attention to the location of the
12 contour, that's the 30 microgram per cubic metre contour
13 if one looks to the first sentence in that paragraph,
14 because it represents the vegetation objective or limit
15 value for this pollutant. This concentration also
16 represents the critical level for NOx. So we are happy
17 with the language that's being used.

18 Now if you have your rebuttal proof to hand,
19 BAA/4/D, I just want to pick up another point about the
20 language. Page 3, please, paragraph 2.2 .4. You are
21 there really dealing with a point about short-term
22 critical levels which, as you know, we have pursued as
23 part of our case. You say that:

24 "Having referred to the WHO guidelines, it is said
25 that a strong case can be made for the provision of such

1 levels", third line of 2.2.4, "but at present there are
2 insufficient data to provide such levels with confidence
3 and a clear recommendation with an unqualified
4 identified level as in the case of the annual mean."

5 That last phrase, "as in the case of the annual
6 mean", that is the 30 micrograms per cubic metre figure
7 that we referred to a moment ago, is it not?

8 A. Yes.

9 Q. So what you are doing there, if one just examines the
10 language, you are drawing a contrast between the
11 position for a short-term guideline and the position for
12 the annual mean, which you describe as or you
13 effectively describe as an unqualified identified level?

14 A. That's correct.

15 Q. That is right, is it not? As we see in the next
16 passage, the extract from the WHO guidelines, down at
17 the bottom of that passage in italics, critical levels
18 for a one year period are recommended to cover
19 relatively long-term effects?

20 A. Correct.

21 Q. The point is there that, as I understand it -- you can
22 confirm if this is in accordance with your
23 understanding -- ecologists don't expect to see adverse
24 impacts on vegetation overnight or over a week or a few
25 weeks or a month. The impacts occur over a longer

1 period and that's the reason for looking at the annual
2 average in broad terms?

3 A. As you said, I am not an ecologist, so I wouldn't like
4 to say how they look at it, but that would appear to be
5 the interpretation from that text.

6 Q. Yes, I am merely asking you to interpret the text you
7 have included in your rebuttal proof. That would seem
8 to be the sensible interpretation of that text.

9 A. Yes.

10 Q. It is not your case, as I understand it, and I have
11 looked carefully at it, that the 30 micrograms per cubic
12 metre has been set too high or too low?

13 A. I make no comment on the value.

14 Q. So we may presume that the level has been set correctly
15 by the competent authorities, may we, for the purposes
16 of this exercise?

17 A. I assume we must, yes.

18 Q. And it is certainly not part of your case that it is
19 necessary for UDC to prove that harm will occur by the
20 exceedance of this value in this case, is it? That's
21 not part of your case? Again I have looked at your
22 proof of rebuttal very carefully, Mr Pratt.

23 A. I think that's correct.

24 Q. Good. Thank you. Now there are questions which arise
25 as to the precise import as a matter of law of the

1 30 microgram per cubic metre value at Hatfield Forest.
2 I fully appreciate you are not a lawyer and I am not
3 going to deal with matters of law through
4 cross-examination. All I want to do is just look at one
5 passage in the environmental statement, volume 3, the
6 air quality chapter, to which you were a significant
7 participant.

8 Can you please take up that document and turn to
9 page 62?

10 A. I have it.

11 Q. Sir, this is volume 3, CD/6. Page 62, towards the end
12 of the text before the figures we have a heading
13 "Cumulative and Interactive Effects". Is that your
14 term, Mr Pratt?

15 A. Absolutely not.

16 Q. I didn't think it was. Anyway it is under the heading
17 11.2, "Interactive Effects", that I want just to test
18 a few points. The discussion really of this point
19 begins at paragraph 11.2.3, where we see there is
20 a general understanding back to the limit values of
21 vegetation, 30 micrograms per cubic metre, and
22 eco-systems. Then there is the SO2 figure we don't need
23 to worry with, they do not apply as specified distances
24 from glomerations or other built up areas,
25 installations, etc, is 5 kilometres:

1 "The areas falling within the specified distances
2 have been referred to as 'exclusion zones'. This
3 general understanding is not given explicitly within the
4 regulation, but can be inferred from the reference to
5 the macro scale siting of sampling points. Schedule 4
6 part 1 of the regulations."

7 So that is where the environmental statement touches
8 on this issue, is it not?

9 A. That is correct. I think it might be earlier as well,
10 but I wouldn't be 100% sure.

11 Q. Then one has a further discussion with points going one
12 way and the other. The odd "however" appears, and it
13 all ends up at paragraph 11.2.7 where one reads in the
14 second sentence:

15 "It follows from this", that's the discussion that's
16 really perhaps more for the lawyers, "that these limit
17 values do not strictly apply within these areas. The
18 ecological as opposed to the legal significance of the
19 NOx concentrations shown in figure 4 and figure 8, and
20 NO2 concentrations below 10 micrograms outside the
21 airport boundary, are considered in section 10.4 of
22 volume 10."

23 So we see there the difference being drawn between
24 the ecological and legal import of the concentrations?

25 A. That's where I was trying to get to, yes.

1 Q. Which I don't criticise for one moment. You in your
2 figures which follow, figures 2, 3 and 4 are examples,
3 that's the 25 MPPA case at 2014, using the various sets
4 of met data in 2001, 2002 and 2003. Those look at 20,
5 30 and 40 micrograms per cubic metre and they look at
6 those figures because 30 is the limit value for
7 vegetation I presume. That's why they looked at the
8 limit value and one either side?

9 A. Broadly, yes.

10 Q. And they have done that in order to assess, as you put
11 it in paragraph 11.2.7, the ecological significance of
12 the NOx concentrations?

13 A. To allow others to look at the ecological significance.

14 Q. Indeed. You were a cog in the wheel?

15 A. Sorry?

16 Q. You are a cog in the wheel, aren't you?

17 A. A very small one usually, yes.

18 Q. I am not going to say that, Mr Pratt, having known you
19 for fifteen years. Can we do then what you invite the
20 reader to do in paragraph 11.2.7 and look at volume 10
21 of the environmental statement, section 10.4? 10.4 is
22 headed -- this is page 57 for those who are just
23 tracking down the reference. Section 10.4, page 57,
24 volume 10, "Other Potential and Direct Effects: Air
25 Quality Issues". At 10.4.4 we see a reference that we

1 have looked at before where the EU limit value is
2 referred to and the 5 kilometre point raised.

3 The last sentence is the reason why the text then
4 continues:

5 "Notwithstanding this exclusion, the concentration
6 is still relevant to the assessment of possible
7 ecological effects within the context of the
8 environmental assessment."

9 So this chapter is written from the same starting
10 point as your chapter, is it not, so far as that issue
11 is concerned?

12 A. I think so, yes.

13 Q. The point is that 30 micrograms per cubic metre is
14 established as the critical level for harm to
15 vegetation, whether or not its exceedance results in
16 a statutory requirement for an air quality management
17 area or some other statutory consequence?

18 A. Well, I don't think it would cause an air quality
19 management, because it is not part of that regulation.

20 Q. Absolutely right.

21 A. I am not aware of what regime might be initiated should
22 that regime have to do something. I don't know what it
23 would be.

24 Q. The point is -- perhaps this is going back over the
25 point we have already agreed, even though there may not

1 be a statutory consequence -- at least that's what the
2 writers of the environmental statement assume because of
3 the 5 kilometre point -- the reason for going on is to
4 establish the ecological issues independent of the
5 statutory consequences?

6 A. Yes.

7 Q. Because, of course, the fact that, for example, Hatfield
8 Forest or East End Wood might lie within 5 kilometres of
9 the M11, that doesn't offset or reduce any impacts on
10 their eco-systems from an exceedance of the 30 microgram
11 per cubic metre threshold, does it?

12 A. No.

13 Q. So just drawing a line under that, no further points of
14 law to pursue with you. We are going to have to
15 exchange submissions on this issue hopefully before the
16 summer recess. Irrespective of the legal issue, there
17 is an ecological impact which needs properly to be
18 considered?

19 A. Yes.

20 Q. That's what the ES in volumes 3 and 10 seeks to do?

21 A. Yes.

22 Q. Thank you. Can I just ask you to make a short detour to
23 CD/87, which is our old and battered friend the Air
24 Transport White Paper. Turn there, please, to page 115
25 at paragraph 11.34.

1 MR BOYLAND: 11.3 -- I did not catch the last figure.

2 MR HILL: 11.34 at the foot of page 115. Now this is in
3 a passage that deals with EU limits, and about
4 three-quarters of the way down paragraph 11.34, the
5 penultimate sentence, we read:
6 "The NOx concentration limit for the protection of
7 vegetation is not considered to be applicable around
8 a developed Stansted."
9 Again that's a sentence that the Inquiry has looked
10 at before. Do you see that block of text, Mr Pratt?
11 A. Yes.
12 Q. Now I can find no further consideration of the
13 ecological impacts of an expanded Stansted on Hatfield
14 Forest anywhere else in the white paper. Have you found
15 such a reference, Mr Pratt?
16 A. In the white paper? No.
17 Q. Could I ask you now to turn to CD/235, which is the
18 SERAS stage 2 appraisal findings report, which was
19 an important document informing the white paper.
20 I imagine you have seen this before. It does deal with
21 some air quality issues, doesn't it?
22 A. I have seen parts of it before, yes.
23 Q. I hope that was on my list. It is supposed to be on my
24 list.
25 MR BOYLAND: Yes, it was. Sorry. It was there, but we

1 missed it, I am afraid.

2 Q. Page 313. I will wait for you to find it, sir.

3 A. Can I say I am in difficulty because the extract I have
4 been given stops at 311.

5 MR PHILLPOT: I am in the same position I am afraid.

6 MR HILL: It is a good job we are looking for the absence of
7 a reference rather than a reference, isn't it? Well, I
8 don't know how to explain the fact that I have a full
9 extract and everyone else stops at 311.

10 MR BOYLAND: We are fortunate that ours does go on beyond
11 that.

12 MR HILL: We have a spare copy here.

13 MR BOYLAND: Can you provide a full copy?

14 A. I didn't have it marked as a CD copy but I will just
15 check. Mine is a different copy so I had better not use
16 that.

17 MR HILL: The witness ought to have to have it. During the
18 lunch an adjournment we will see if we can find
19 a further copy for my learned friend. If not, there is
20 only a small section remaining. I am sure the extra
21 pages can be copied.

22 Section 9.9 on page 313 is entitled "Environment:
23 Local Air Quality Impacts". It looks at NO2 and PM10 in
24 particular in a human health context. Mr Pratt will be
25 familiar with those passages I suspect. Do you see

1 where I mean, 313 through to 315?

2 A. Sorry. You are talking of pages. I was looking through
3 paragraphs.

4 Q. It deals with NO2 and PM10 in a human health context. I
5 can find no analysis of ecological impacts by reference
6 to air quality issues. Is that a fair conclusion?

7 A. It's a long while since I have looked at this document
8 and I can't see something quickly here, but I can't say
9 I've read it word for word.

10 Q. No, I understand. Well, plainly if there is something I
11 have failed to draw to your attention, I am sure it will
12 be picked up in re-examination or at some other point.

13 We looked at the white paper. We looked at the
14 SERAS analysis. Are you aware of anywhere else in the
15 documentation that was prepared for the government by
16 the SERAS study and those who drew up the white paper of
17 any analysis of the ecological impacts on Hatfield
18 Forest of expanding Stansted?

19 A. I'm personally not aware of any, no.

20 Q. Thank you very much. I wanted to give you the
21 opportunity to draw anything to the Inquiry's attention
22 that you were aware of. You can put that away now and
23 indeed the white paper.

24 A. Have we finished with the --

25 Q. The white paper and the SERAS document.

1 A. Not the environmental statement.

2 Q. Oh no. Can I turn then to your assessment, Mr Pratt?

3 I take it that you are principally responsible for the

4 assessment that you are speaking to?

5 A. Yes, I'm not the leader of the team that did the

6 assessment. I would characterise it that way.

7 I drafted most of the ES.

8 Q. Yes. Thank you. Your approach is to model the NOx

9 concentrations for 2014 at the 25 MPPA base case and

10 then the 35 MPPA G1 case and then you report the

11 contours in the document you speak to?

12 A. Correct.

13 Q. Now there are also the sensitivity analyses. We will

14 come back and touch upon those --

15 A. Yes.

16 Q. -- at the end, if we may, but you are also responsible

17 for those I assume?

18 A. Yes.

19 Q. Modelling then. Can we go back to volume 3 of the ES,

20 CD/6, and turn to page 10? Page 10, paragraph 5.2.1,

21 first sentence:

22 "It is important that models are tested against

23 measurements where available."

24 I assume that's a sentiment that comes from you,

25 Mr Pratt, or if it doesn't, it is one you agree with?

1 A. It is one I agree with, yes.

2 Q. That reflects the fairly obvious point that modelling is
3 a fairly imprecise science, subject to a variety of
4 uncertainties and dependent on a number of assumptions?

5 A. Yes.

6 Q. And indeed in your text that follows on page 10 at
7 paragraph 5.2.2, second bullet point, you properly make
8 reference to, in the second sentence:

9 "... the inherent uncertainties in air quality
10 modelling."

11 A. Yes.

12 Q. An example of how imprecise it can be is close at hand,
13 is it not, referred to in this document, namely the work
14 undertaken by you and others for the 15 plus planning
15 application.

16 If we look at 5.2 .1 on that page we have just open
17 in front of us, last sentence, or referring there to the
18 15 plus application and what happened during the
19 processing of that application:

20 "There was some on site monitoring at two locations
21 just outside the airport, High House and Thremhall
22 Priory. This indicated the modelling was overpredicting
23 the airport contribution to the annual mean NOx
24 concentrations at that time."

25 Then there was a further document, an extra

1 chapter to the environmental assessment prepared, wasn't
2 there?

3 A. That's correct.

4 Q. Which reported that exercise and did a compare and
5 contrast analysis?

6 A. Yes. I think this highlights that we had taken a series
7 of conservative assumptions and perhaps been too
8 conservative, hence model overestimates.

9 Q. That's what you say about 50 plus. What happened as
10 a result of that analysis for the 2001, 15 plus
11 application, you have dramatically altered, have you
12 not, the NOx inputs for your modelling as between 2001
13 and 2006 for the 25 MPPA case?

14 A. I think that's a reflection of the work that has been
15 continuing on model emission developments.

16 Q. That may be the case, but as a matter of fact you have
17 dramatically altered the NOx inputs for your modelling
18 in the matter of just a few years for the 25 MPPA case,
19 haven't you?

20 A. We have changed that, yes.

21 Q. Let us have a look. Page 39 of this document?

22 A. I am not disputing they have changed.

23 Q. I know, but the fact they have changed doesn't take us
24 very far. They have changed significantly, have they
25 not? Have a look at page 39: table 22. The NOx load

1 that you are working on for the purposes of the
2 modelling has halved, has it not, essentially, which is
3 a significant change, is it not?

4 A. It has halved. I agree.

5 Q. You have done that, you've halved the input into the
6 model, on the basis of what you described at
7 paragraph 10.2.8 as "better information"?

8 A. Yes.

9 Q. Inevitably this has a significant effect on the mean
10 concentrations, does it not?

11 A. It changes the concentrations.

12 Q. If we look down to the bottom of that page, 10.2.12,
13 second sentence:

14 "This work shows that for aircraft the contribution
15 to the period mean NOx concentration at High House is
16 about a factor of 4 lower than in the 15 plus
17 application assessment."

18 Yes?

19 A. That's correct.

20 Q. So your model predictions in that context have changed
21 by a factor of 4 in a matter of a few years for the same
22 25 MPPA throughput?

23 A. They have changed, as stated there, yes.

24 Q. That highlights, does it not, Mr Pratt, the
25 uncertainties associated with this exercise?

1 A. Well, I accept there are uncertainties in modelling, but
2 I think what you've been highlighting is the progression
3 of an approach to better predict future concentrations
4 of which PSDH is a further evolution.

5 Q. Yes. I am not suggesting that the science isn't moving
6 forward, I am sure it is, Mr Pratt, but this was not
7 very long ago, was it, the 2001/2002 application?

8 A. Science can change quite quickly.

9 Q. Indeed, indeed.

10 As we have seen, this issue was becoming apparent in
11 2002 and that's why the extra chapter to the ES 15 plus
12 planning application which was referred to in
13 paragraph 5.2.1 on page 10 was put in. The reason it
14 became apparent was some actual measurements taken on
15 the ground at High House and Thremhall Priory or Farm?

16 A. I think the modelling gave us a value that caused
17 concern therefore the monitoring was done.

18 Q. Hold on. You put the environmental statement in in
19 2001?

20 A. Yes.

21 Q. It was after that it was carried out.

22

23 A. The monitoring exercise was carried out after the
24 submission of the ES.

25 Q. And the addendum went in in 2002?

1 A. The addendum went in, that's correct.

2 Q. So when you were appointed in November 2004 with your
3 instruction to assist with the preparation of
4 an environmental statement to support the G1
5 application, it must have been obvious to you, Mr Pratt,
6 that there was a need for a reliable suite of actual
7 monitoring data around the airport to inform the
8 environmental statement and assist with the verification
9 and validation of modelling, must it not, because you
10 had just been through that recent experience of
11 over-predicting by a factor of 4?

12 A. We had gone through that experience, as you say, but the
13 modelling team had been at work at other airports and
14 had been refining the methodology. The model was
15 already validated. There was work elsewhere to indicate
16 the performance level of the model. So I didn't take
17 a view when I was commissioned that we needed to
18 establish monitoring sites at Stansted.

19 Q. So despite that recent experience, you didn't feel it
20 was prudent to advise BAA to commission a suite of
21 actual monitoring data around Stansted Airport?

22 A. Not in the circumstances outlined, I didn't.

23 Q. That explains why no such monitoring was carried out by
24 BAA. It is because you didn't advise them to. That's
25 the explanation, Mr Pratt?

1 A. Well, that's an explanation.

2 Q. I see.

3 A. But there is a timing issue as well.

4 Q. Well, you were instructed in November 2004?

5 A. Yes.

6 Q. The application wasn't submitted until April 2006, was
7 it?

8 A. Yes, but had there been a need that I saw to establish
9 monitoring, then you have to get the monitoring
10 equipment in. It has to run for a long enough period
11 and the submission would not have gone in on that data.

12 Q. Well you say that. We have had to do this, of course,
13 we've had to get some actual data in the absence of
14 anything satisfactory from BAA. We were able to do it
15 and set it up. Are you seriously suggesting
16 an organisation such as BAA could not have commissioned
17 a suite of data for the year 2005 if you had asked it to
18 in November 2004, Mr Pratt? Are you suggesting that
19 would not have been possible?

20 A. I'm not saying it would not have been possible. What I
21 was saying was if you established your monitoring in
22 2005 and you were going to do another seven or 12 month
23 period, then you couldn't have started your model test
24 until 2006.

25 Q. I don't think you are following the line, Mr Pratt. I

1 am not suggesting that you had to wait until you had got
2 the 2005 data set before you could do anything else. I
3 am suggesting you would have a 2005 data set, which you
4 would be collecting in parallel with doing your work
5 that you would be doing anyway -- you did do anyway. So
6 when you had your results, you had an up-to-date,
7 relevant set of data that you could use to test some of
8 the results you were getting from the modelling?

9 A. Yes. The point I'm trying to make is if you did a set
10 of data for 2005, then your initial data that you put
11 into the model would have to relate to 2005. So you
12 would not be able to start the model test piece of work
13 until the end of the monitoring period or the data was
14 available. You can't do it in parallel.

15 Q. Of course, we are now in July 2007, so there would be
16 yet further opportunities to take advantage of the data
17 set. As it was, nothing further was done pursuant to
18 your appointment, is that right? No further monitoring
19 of any sort was done pursuant to and subsequent to your
20 appointment?

21 A. In the context of G1, that's correct.

22 Q. Thank you. Can we look then at the environmental
23 statement again, section 8, which calls itself "Baseline
24 Conditions". It starts on page 19. Now where in
25 section 8 of baseline conditions of this environmental

1 statement, Mr Pratt, will I find current NOx
2 measurements?

3 A. 2005 data is the most recent that was available at that
4 time and some of the 2005 data I think is calculated
5 because --

6 Q. Just direct me to it. There are NO2 concentrations but
7 we know they are not the same thing at all; as we have
8 seen from some of your own outputs the NO2 contours and
9 the NOx contours are nowhere near coexistent.

10 Where do I find the NOx concentrations in this
11 section on baseline conditions?

12 A. They are not in this section.

13 Q. There aren't any, are there?

14 A. No.

15 Q. We have got some results from the NO2 diffusion tubes,
16 we can turn to those -- they are at various places,
17 aren't they? 22 is one. The ES is quite sceptical, is
18 it not, about their accuracy, the diffusion tubes
19 results?

20 A. I think there are some reservations on the accuracy of
21 diffusion tubes, yes.

22 Q. For anyone who wants the reference, paragraph 8.1.31 is
23 an example of scepticism being expressed about the
24 accuracy of diffusion tube results.

25 For continuous monitoring we have only got, have we

1 not, table 10 for what the airport has done. Is that
2 right?

3 A. What the airport has done, yes.

4 Q. And we have got two sites, High House and Thremhall
5 Farm. It is possibly worth looking at figure 1 to see
6 where those are, because we will have to come back to
7 them on more than one occasion in the course of this
8 cross-examination.

9 High House has the green star. It is in figure 1 of
10 the environmental statement. I know it is elsewhere as
11 well but it would be useful to look at figure 1.

12 High House along the eastern side of the runway here.
13 Then Thremhall Priory or Thremhall Farm just to the
14 south of the new A120 and to the north of the old A120?

15 A. That's correct.

16 Q. Yes. We have got no NOx figures, of course, for those
17 two sites that we have already confirmed.

18 Thremhall Farm, of course, is close to Hatfield Forest,
19 is it not?

20 A. Yes.

21 Q. And all we have there is that value for September 2001
22 to January 2002. That's just an NO2 value.

23 A. There are obviously NOx values that could have been put
24 in this table, but for reasons we talked about they
25 weren't.

1 Q. Sorry. Reasons we have already talked about being?

2 A. Being the view that was taken on NOx and its
3 applicability. So the NOx data is in these data sets,
4 but because of the way we were dealing with NOx, and
5 there wasn't the focus on NOx that there is now at this
6 inquiry, that is probably why the NOx concentrations
7 were not put in. It is not that they don't exist.

8 Q. I had not appreciated that. We have already seen the
9 NOx issue is regarded as relevant by the environmental
10 statement. That's why you have gone on to consider the
11 ecological impacts irrespective of the legal position?

12 A. Yes, but at the time the ES was drafted, NOx
13 concentrations weren't put in there, which they could
14 have been, and certainly the ecology team didn't asked
15 for them. So it is an omission, but the data was
16 recorded.

17 Q. Very well, that's not in the ES. We don't have any
18 monitoring for Thremhall Farm for, as it says in the
19 box, the October 2003 to June 2004 and November 2004 to
20 March 2005 periods?

21 A. No, that station was only operational for that period.

22 Q. So the only data against which to test your extensive
23 predicted contours, which occupy so many of the figures
24 at the back of this proof, is the single continuous
25 analyser at High House?

1 A. That's correct.

2 Q. We see that confirmed in the document, the environmental
3 statement, at page 10, paragraph 5.2.2, where we have
4 been before. The last but one sentence before one comes
5 to the bullet point:

6 "In particular, a test was carried out at Stansted
7 Airport in which the latest version of the methodology
8 was applied to a seven-month period in 2003/2004 using
9 detailed airport activity data for the period and/or the
10 mean NOx concentrations predicted by the model were
11 compared against measurements taken of the continuous
12 NO2 analyser at High House during the period."

13 Now you have produced some contours for 2003/2004.
14 That's the 7-month period. You must have done that at
15 the time of the environmental statement?

16 A. No, they were produced afterwards. They were produced
17 at the request of Dr Haycock.

18 Q. So what was done at the time of the environmental
19 statement in order to carry out this comparison was
20 simply a single figure produced for High House?

21 A. No, there were other receptors in the model. The
22 diffusion tube sites were part of the receptors, but
23 there wasn't a full array of receptors, nor were
24 contours produced at that time.

25 Q. Oh, I understand that, because you told us that the only

1 comparison to make was with the High House measurements.
2 I am just trying to understand what was done at the time
3 of the environmental statement to carry out some sort of
4 verification.

5 You told us there that there was the seven month
6 2003/2004 set of data at High House, and you obviously
7 carried out some kind of comparison. I understood you
8 had produced the 2003/2004 contour and then compared it
9 with -- read off what one had for High House, a spot
10 figure?

11 A. No, you put in a receptor point and you model it and do
12 that comparison.

13 Q. So you produced that one point for High House and you
14 carried out that comparison as stated in 5.2.2?

15 A. And that were receptors for the diffusion tube sites as
16 well.

17 Q. But you don't rely upon those for this exercise?

18 A. No.

19 Q. You don't rely on these for the model test?

20 A. In the model test report it does talk about those four
21 sites.

22 Q. As we have seen, the doubt is cast upon the accuracy of
23 the diffusion tube results?

24 A. Yes.

25 Q. It seems that there was a reasonable correlation between

1 the predicted modelled concentration for High House and
2 that measured. One sees a reference to only 5% off in
3 the second bullet point. As a result of that, no
4 further work was commissioned on monitoring?

5 A. Well, no further work was commissioned on monitoring.
6 It wasn't a direct result of that piece of information.

7 Q. Well, just look at this. If we look at the second
8 bullet point, the total period mean NOx concentration
9 given by the model was only 5% different from the
10 measured period mean:

11 "Given the inherent uncertainties in air quality
12 modelling and measurement, such a close agreement could
13 result in the cancelling out of contributions from
14 different sources. Nevertheless, the comparison
15 provides no evidence that the model significantly over
16 or under predicts annual mean concentrations."

17 So a caveat is entered there; there is this one set
18 of data to compare and nothing further was done after
19 that?

20 A. That's correct.

21 Q. In terms of how important this issue is, how sensitive
22 it is, if we look at your figures 2 to 4 for the -- this
23 is the base case, looking at the contours that you have
24 produced there for the three years, met data, the
25 30 microgram per cubic metre line is the green line, is

1 it not? This is at the back of the document?

2 A. That's correct.

3 Q. If we look at the 2001 data, or I should say the model

4 output using the 2001 data in figure 2, the green

5 line extends below Thremhall Priory Farm and really

6 comes up to the line of the old A120. Then one has got

7 a very similar position indeed for the next figure, the

8 2002 data. Again very similar for 2003 in terms of the

9 proximity of the 30 microgram contour to Hatfield

10 Forest?

11 A. Yes.

12 Q. In fact, just looking at those three figures, the

13 boundary of Hatfield Forest is shown quite clearly, is

14 it not, just inside of the A120; you have got

15 a 20 microgram per cubic metre contour there. What

16 concentration would you be predicting there at the

17 north-west corner of Hatfield Forest, just interpolating

18 from the 30 line? Would it be 29 or 28, something of

19 that order?

20 A. Something like that, yes. Probably nearer 29 than 28.

21 Q. Right. So certainly very close to the 30 limit. Yes?

22 A. Yes.

23 Q. Given you were out by a factor of 4 in one of your

24 predictions last time, there is every reason for

25 caution, is there not, in this particular exercise?

1 A. A factor of 4 was in one element of the model at a site
2 very close to the airport where that source would have
3 greater effect.

4 Q. I am just saying it could be a factor of 2. A factor of
5 4 is bad. It is simply highlighting, is it not, the
6 reason for caution and care in this particular case. I
7 am sure you would want to adopt that approach, wouldn't
8 you, Mr Pratt?

9 A. Because the model had been used at other sites in the
10 intervening period, I am confident that we progressed
11 development of the model.

12 Q. Yes.

13 MS HANNETT: I am so sorry to interrupt. I wonder if
14 Mr Pratt could move a little closer to the microphone.

15 MR HILL: You are sitting back in a very relaxed way,
16 Mr Pratt.

17 A. I was trying to concentrate on the questions.

18 Q. I am not criticising you.

19 Now if we are at, as you put it, nearer 29 probably
20 than 28 on that corner of Hatfield Forest, we are in
21 excess of 90% of the limit value, aren't we? 90% would
22 be 27.

23 A. Yes.

24 Q. So we are at 90% of the limit value. Applying the
25 principles set out in the environmental statement --

1 just turn to page 11 of the environmental statement.
2 Paragraph 5.3.3, this is where you deal with sensitivity
3 receptors. You say in the last but one sentence of
4 paragraph 5.3.3, page 11 of volume 3:

5 "Receptor sensitivity is judged to be high or low if
6 the concentration in the 25 MPPA case is above 90%",
7 I presume that means high, "or below 75%", that means
8 low, "of the relevant AQO. Where concentrations fall
9 between these percentages, the AQO receptor is
10 classified as medium sensitivity."

11 A. Yes.

12 Q. So looking at the thresholds and the guidance provided
13 there, Hatfield Forest, where we have established a base
14 case concentration well in excess of 90% of the limit
15 value, Hatfield Forest would be a highly sensitive
16 receptor, wouldn't it, applying those common sense
17 principles?

18 A. Yes, although I think I say in ES that we weren't
19 looking at NOx against those criteria, because these
20 were health-based objectives, and I did say, and I can't
21 remember where but I am sure I could find it outside the
22 Inquiry, there was -- I said because it was my
23 understanding -- common understanding, as I referred to
24 it, that the NOx limit did not apply. I had not used
25 that approach in the ES for NOx.

1 Q. That may be the case. You tell us that now. It is not
2 clear from the text. The point is it is a thoughtful
3 and considered approach to receptor sensitivity, is it
4 not? That's what you have tried to set out there?

5 A. I tried to develop that.

6 Q. If one applies it, there is no other -- there is no
7 other guidance. There is no separate section that deals
8 with ecology. If one applies it to the 30 micrograms
9 per cubic metre limit threshold that we have agreed is
10 relevant, then we are in the high receptor sensitivity
11 group, aren't we?

12 A. On the way it is constructed, yes.

13 Q. Although, of course, no doubt ecologists, someone such
14 as Dr Gibson of Natural England would say that
15 Hatfield Forest should be regarded as a highly sensitive
16 receptor for entirely separate reasons?

17 A. That's what I understood him to say, yes.

18 Q. So we have seen how you have used the 2003 to 2004 model
19 output for High House. We have seen how the ES itself
20 treats the High House monitoring results and compares
21 them in one instance with the model output. We have
22 looked at 5.2.2, second bullet point, at that reference
23 to inherent uncertainties. It is hardly grounds for
24 complacency, is it, Mr Pratt, about the suite of actual
25 monitoring data that BAA holds?

1 A. I don't think I was complacent.

2 Q. But it is not grounds for it, is it? On the basis of
3 one result, one comparison, one wouldn't normally regard
4 oneself as satisfied that a thorough verification
5 process had been completed?

6 A. I'm not sure I wholly agree with that, because we are
7 talking about a well-validated model that has been used
8 at a number of other locations, and certainly not every
9 modelling study will have monitoring sites for
10 a verification. In fact, some people don't carry out
11 verification at all.

12 Q. You say it is a well-validated model. Do you present in
13 your proof reports of the validation that we could have
14 examined and tested?

15 A. No, I think in the ES and evidence there is reference to
16 the website of the people who wrote the software and did
17 the validation, which is normal for software to be
18 validated in that way.

19 Q. In any event we heard a moment ago in your supplementary
20 questions in chief that you are now telling us that
21 2003/2004 is or can be regarded as a current case, for
22 the purposes of this exercise?

23 A. It can be, yes.

24 Q. And you have not, as I understand it, produced or
25 presented any modelled concentrations for 2006?

1 A. No, we have not.

2 Q. Or 2005?

3 A. No.

4 Q. The first time we saw the 2003/2004 results was in
5 BAA/4/F, which arrived the day before Mr Moorcroft's
6 evidence?

7 A. Yes. They had been sent to the person who asked for
8 them before. They weren't -- sorry, the current case
9 was not included in the ES, because it is very useful to
10 have one when you are looking at developments that are
11 happening within a year or so of the current case, but
12 as the time gets further into the distance, the value of
13 comparisons between a current case and future case in my
14 view is less helpful.

15 Q. Well, as you say, they are not presented in the ES.
16 There is no current year case presented anywhere in the
17 ES, is there?

18 A. Nor was one requested, as I recall.

19 Q. We have seen Mr Moorcroft's comments on that.
20 You believe that the 2003/2004 results are reliable?

21 A. I believe so, yes.

22 Q. Now you took us in chief to the table in 4/F revised
23 table R1.
24 You were drawing the comparison between the modelled
25 figure for 2004, 28.42 at Shell House, and the measured

1 figure of 22.6; yes?

2 A. I did.

3 Q. Which, of course, is about 6 micrograms less than the
4 modelled figure, is it not?

5 A. Yes.

6 Q. Or about 27% adrift, in contrast to the 5% that is
7 relied upon in the environmental statement?

8 A. Yes, but it is within the level -- if that -- I did try
9 to choose my words carefully. If that was a precise
10 comparison and they were identical periods, and you got
11 the same result, they would still be within the
12 acceptable levels of uncertainty models.

13 Q. Did you generate one from 16th January to 4th June,
14 a modelled output?

15 A. No, I haven't.

16 Q. You could have done, though?

17 A. Not from the time the data became available to me giving
18 evidence.

19 Q. Well, we have seen that figure. We just need to bear
20 that in mind. 5% in the ES, 27% there.

21 Now can I just take you to the other information
22 that you produce in BAA/4/F relating to this 2003/2004
23 exercise? It is quite useful for a number of points
24 I think. This is figures 1 and 2, the coloured figures,
25 at the very back of 4/F, which was received just before

1 Mr Moorcroft came to give his evidence.

2 One thing that we can pick up is that the NOx and
3 the NO2 concentrations, the contours, are in no way
4 comparable, are they, if one looks at the two sets of
5 data?

6 A. Well, NO2 is derived from the NOx.

7 Q. Indeed so, but it is not as if there is a tiny adjust:
8 they are more or less the same, you can treat NO2 as
9 NOx, it's like that. If you examine the contours, they
10 are far apart.

11 A. Yes, but the magnitude has gone down, because the 30
12 contour is in a similar position in the two graphs, but
13 one is a 30 level and the other is a 20 level.

14 Q. Indeed, that's the point.

15 A. Sorry. I missed your point.

16 Q. Don't worry. What one does note in figure 1, which is
17 the NOx set of contours, is that about half
18 Hatfield Forest appears to be captured by the
19 30 micrograms per cubic metre NOx concentration?

20 A. Yes.

21 Q. And it certainly comes within several hundred metres of
22 the Shell House?

23 A. It's getting close to it, yes.

24 Q. It's getting close to it. Of course, Stansted's
25 throughput has increased, has it not, since 2003/2004

1 compared to 2007?

2 A. It is increasing, yes.

3 Q. Do I find any acknowledgment in the environmental
4 statement that Hatfield Forest is already likely to be
5 subject to a burden of in excess of 30 micrograms per
6 cubic metre?

7 A. No.

8 Q. Why is that?

9 A. With hindsight it should have been, and certainly in
10 discussions on scoping that I had at the time there was
11 no clear thrust to including NOx.

12 Q. Well, is that really an excuse, Mr Pratt? You can't
13 blame UDC for not knowing all this information that you
14 held?

15 A. I wasn't using it as an excuse, but I certainly did try
16 to reflect in the ES the elements of significance, and
17 NOx I accept is one that should have been there.

18 Q. Indeed. What is also clear is that in excess of
19 one-third of these NOx concentrations are due to the
20 airport if one looks at the modelling that you have
21 produced in the ES?

22 A. Yes.

23 Q. I mean the concentrations in the forest, if there's any
24 doubt about that question.

25 A. And again it is a third at one end of the forest and it

1 reduces.

2 Q. Yes, it obviously reduces as one goes further south.

3 One gets a feel for that perhaps looking at the ES at
4 pages 33 to 34, where you carry out your exercise
5 looking at the three sets of met data. One has
6 Thremhall Farm which, as we have seen, is just over the
7 road, as it were, from Hatfield Forest. One has the NOx
8 figures for -- sorry -- for those of us who have not
9 looked at this before, it is about nine down,
10 Thremhall Farm, 2001, 2002, 2003. We have for the first
11 one, total airport related is 12.3 micrograms per cubic
12 metre out of a total of 31.8; in 2002, 11.4 out of
13 a total of 30.7; 2003, over the page, 10.3 out of
14 a total of 31.1.

15 Those are the inputs for the model?

16 A. Yes.

17 Q. They are not what you actually measured; those are the
18 inputs for the model?

19 A. No. They are for 2014, so one couldn't measure them.

20 Q. I understand that. Then perhaps this is a useful point
21 just to note at page 50 of the ES. 10.3.3, so far as
22 NOx is concerned, the highest of the incremental changes
23 as between 25 and 35 is the NOx figure, is it not?

24 A. It is.

25 MR HILL: We are just coming up to 1 o'clock. Sir, I wonder

1 if that's a good point. It is a useful point for me to
2 break?

3 MR BOYLAND: That's fine, thank you. We will adjourn until
4 1.55 then. Thank you.

5 (12.55 pm)

6 (Luncheon adjournment)

7 (1.55 pm)

8 MR BOYLAND: The Inquiry is resumed. Thank you. Mr Hill.

9 MR HILL: Thank you, sir. Good afternoon, Mr Pratt.

10 A. Good afternoon.

11 Q. Just indicating that arising from one or two things you
12 told me this morning, CD/24 and CD/145 may be referred
13 to, so if you could see if you have those not too far
14 away that would be helpful. Indeed, we can deal with
15 the CD/24 point quite quickly now: you were telling me
16 this morning about your understanding of the matters
17 that were considered important by the District Council
18 at the time of scoping. This, of course, is the scoping
19 opinion that Uttlesford produced in November 2004,
20 coincidentally the date of your appointment.

21 If you turn in the document to page 7, you will see
22 in the left-hand column we have a reference to levels
23 and impacts of emissions on the eco-systems in
24 Hatfield Forest. Do you see that?

25 A. I do.

1 Q. That was the impact of emissions on eco-systems in
2 Hatfield Forest. On the right-hand column we have
3 reference to studying current levels of emissions of
4 NOx. Do you see that?

5 A. I do.

6 Q. So it was not fair to suggest this was not in the local
7 authority's mind at the time of the scoping?

8 A. I agree I was in error.

9 Q. You can put that away now.

10 You have made a number of references in the context
11 of verification to how often the model has been
12 verified. Seeing the material that you have presented
13 to the Inquiry, it is right as a matter of fact, isn't
14 it, that save for this one site at High House, the model
15 has not been verified for this airport with its met
16 data, its terrain, its pattern of movements at all? It
17 is just that one instance?

18 A. Yes, that's correct.

19 Q. Now as to the process and what UDC have done to try to
20 take this matter forward, I don't want to trawl through
21 all the documentation, but I do want to at least touch
22 on what happened so the inspectors and the Secretary of
23 State are able to report fairly on this very important
24 matter from the District Council's perspective.

25 It is right, is it not, that the need for more model

1 verification was pointed out by the District Council
2 early in the process, in the review of the environmental
3 statement?

4 A. In the review of the environmental statement.

5 Q. If we just turn to, I think I put that on my documents
6 list before, that was CD/144, a document that came out
7 in the summer last year. I can vaguely remember what
8 a summer was.

9 This is a review of the environmental statement. It
10 encompasses a number of matters, but amongst the matters
11 covered is quality. I just want to touch on page 24,
12 which is within the part of the document that deals with
13 air quality. It is really just part of the conclusions.
14 One can see the previous page, 23, just to set this in
15 its context, conclusions, key issues. Paragraph 6.6 at
16 the top of page 24:

17 "It is surprising that the model verification
18 described within the model will test report is reliant
19 upon a single, continuous monitoring site with only
20 seven months data available. A comparison of measured
21 versus modelled NOx and NO2 suggests that the modelling
22 approach might be slightly under-predicting nitrogen
23 oxide concentrations. However, the inclusion of another
24 continuous site ... which has lent considerably greater
25 confidence to the model performance."

1 So that matter was fairly drawn to BAA's attention
2 in the review of the environmental statement, yes?

3 A. That's correct.

4 Q. We know that that didn't result in any further work
5 being undertaken of a monitoring nature. I put the
6 regulation 19 on the list, but I am not sure we need to
7 look through it just to confirm that there isn't
8 anything further in there. But there is not, is there,
9 in terms of further results of monitoring the regulation
10 19?

11 A. No.

12 Q. Then we have the results of the review of the regulation
13 19, the shorter document, 145, as I just mentioned,
14 CD/145. What we need is paragraph 2.9 on page 3, where
15 one reads -- well, it is the same point again:

16 "No change on this front, verification exercise is
17 extremely disappointing, focuses on data from a single
18 site in operation for seven months."

19 And 3.2 in the conclusions really makes the same
20 point which resulted from lack of forward thinking by
21 BAAS to ensure that adequate and robust monitoring data
22 were in place:

23 "Not possible for either party to fully answer the
24 question of model performance as there is simply
25 insufficient data to do so."

1 Yes?

2 Then we come to proofs of evidence, and in terms of
3 sequence of events there is no further monitoring
4 material reported in your proof when it was delivered in
5 April 2007.

6 Mr Moorcroft in his rebuttal proof, if you would
7 just take that up, page 7. That is UDC/7/C: have you
8 managed to dig that out?

9 A. I have it, yes. Sorry.

10 Q. Page 7, paragraph 4.14. This is the completion of the
11 section on model verification and uncertainty, which is
12 section 4, ending:

13 "In summary, the model verification at Gatwick was
14 based on three automatic sites and 26 diffusion tubes,
15 while that at Heathrow was based on at least 12
16 automatic sites. Contrast and verification for the G1
17 assessment relies on one automatic site with only seven
18 months' data."

19 That as a matter of fact, in terms of those other
20 airports, Gatwick and Heathrow, is correct, is it not?

21 A. Yes. I think it is probably fair to say that the
22 Gatwick study actually an air quality management
23 zone-related study that used modelling from Gatwick. So
24 there was a different purpose for looking at that data.

25 Q. But in terms of what was available to those who were

1 interested, there was more available?

2 A. You do tend to get a lot more monitoring stations
3 available in air quality management. So ...

4 Q. I am happy for that to be entered as your qualification,
5 if that's necessary.

6 Of course, we know that the reason for refusal on
7 air quality grounds expressly alleged insufficient real
8 data is available.

9 Did you, when you saw that reason for refusal, think
10 that even in November of last year you could go out and
11 gather a three month, four month period which could
12 usefully contribute to the understanding of the baseline
13 position?

14 A. Well, I think the way the evidence -- my evidence read,
15 when I read that condition, I had read it in the context
16 of a deposition point, not an NOx air quality one.

17 Q. Although throughout the documentation there is
18 a complaint about a lack of data for the model
19 verification, is there not? That's maintained
20 throughout the documents as we have seen?

21 A. But the lack of data is moving from different things,
22 different points. The way I read it, we were in a
23 deposition context, and I read the lack of data as being
24 in that context.

25 Q. But in the same month as the recent refusal in

1 November -- we have just seen the CD/145 -- the concern
2 is expressed once again about the lack of data for model
3 verification, is it not?

4 A. Yes, but to verify the model, unless the whole piece of
5 work was totally repeated, could not in my view be done
6 retrospectively. If you had done a model test in
7 2003/2004 and everything is consistent with that, you
8 could have done some measurements in 2006/2007, but that
9 wouldn't shed any light on performance of the model
10 relating to 2003/2004. You would have had to have
11 redone the model test in the period of the monitoring to
12 draw conclusions on the performance of the model.

13 Q. Well, I am not going to go back over the earlier
14 questions I asked you, the extent to which BAA was
15 effectively deprived of the opportunity to do anything
16 more at any stage to improve the data, because we all
17 know there was an opportunity to do something between
18 your instruction in November 2004 and our sitting here
19 in July 2007.

20 Now, as you know, UDC have had to go out and do
21 their own work in the absence of anything from BAA. We
22 have got to date the material that has been reported in
23 Mr Moorcroft's evidence. We will seek to keep the
24 Inquiry posted with the next tranche of data when it is
25 available.

1 As I understand the position, your 4/F, which is the
2 one that came out just before Mr Moorcroft's appearance,
3 is an attempt, Mr Pratt, to try to find some reason not
4 to place any signatory lines on the four month data set
5 that Mr Moorcroft reports?

6 A. I would have said it was more an attempt to understand
7 why it looks at numbers.

8 Q. I see. You have raised a series of questions and
9 Mr Moorcroft, I know, has been helpfully replying to the
10 questions you have raised, has he not?

11 A. We have been discussing matters, yes.

12 Q. And we are trying to reach a state of common ground to
13 assist the inspectors on such matters as we can?

14 A. We are trying to, yes.

15 Q. No doubt you will continue to assist with that?

16 A. I will do my best.

17 Q. I don't want to cut across those efforts and the
18 exchanges that are taking place.

19 MR BOYLAND: Mr Hill has expressed confidence there will be
20 some sort of agreement. Do you share that confidence?

21 A. I share that confidence. There are one or two areas
22 which I suspect are not strictly common ground. They
23 are factual matters but, as I have indicated earlier, on
24 one or two things I would not have gone that route,
25 although the numbers are correct if you see what I mean.

1 So I do share Mr Hill's confidence that we will be
2 producing some common ground.

3 MR PHILLPOT: To clarify that, sir, the document that has
4 been produced as a draft statement of common ground is
5 simply dealing with monitoring data. It lists
6 monitoring data available from different monitoring
7 stations, the percentage of data capture, and the status
8 and how far it has gone towards verification,
9 validation, etc. At the moment it doesn't seek to go
10 further than that. Just to put those answers into
11 context.

12 MR BOYLAND: That's fine. Thank you. Just to say that
13 obviously if as much as possible is agreed, that would
14 be helpful, but if there are differences, if those
15 differences could be spelt out, giving the respective
16 positions rather than saying there is a lack of
17 agreement, that would be helpful too.

18 A. I shall do my best to achieve that, sir.

19 MR HILL: Thank you very much, Mr Pratt.

20 I presume you would agree as a starting point that
21 where one has an extensive data set, one should not
22 discount it unless there is good reason for doing so.

23 A. That's correct.

24 Q. Now can we look at one or two of the points that you
25 raised before by reference to UDC/7/D. I appreciate,

1 sir, you may not be familiar with UDC/7/D. It probably
2 reached your desk this morning?

3 MR BOYLAND: It was sent just before we started. We have
4 only looked at the bits that have been referred to so
5 far.

6 MR HILL: We did provide it to Mr Pratt earlier. We are
7 hopeful it might have formed the basis of part of the
8 basis of common ground. It may still do so. But so you
9 understand, it has not been sprung on Mr Pratt this
10 morning. That isn't the way the sequence has unfolded.
11 Your table R2 in BAA/4/F as amended.

12 MR BOYLAND: Sorry, is this the version in the erratum?

13 MR HILL: It probably is, sir, yes. It was the one you
14 didn't find immediately to hand this morning.

15 MR BOYLAND: I have it with the heading "BAA erratum".
16 A. That is correct, sir.

17 MR HILL: It is table R2. This is the document that was put
18 in when Mr Moorcroft was giving his evidence. Am I
19 right in thinking that the purpose of the table R2 was
20 to seek to suggest that some of the data being reported
21 at Shell House were really so far removed from the data
22 being reported elsewhere as to raise serious doubts
23 about their validity and accuracy?

24 A. I wouldn't have put it like that. I was trying to
25 illustrate from a point in time the concentrations that

1 were occurring at those dates in the R2 figure. It's
2 a difficult comparison to do, and I suspect expanding
3 the time base might have been a better way of doing it.

4 Q. I see. Again I know you are a searcher after truth,
5 like me, Mr Pratt?

6 A. I hope I am.

7 Q. So we will see how we get on, but certainly looking at
8 the first line, which is just a snapshot, and it is
9 an hourly value for 28th March?

10 A. Yes.

11 Q. And one has got for Shell House 211 -- it contrasts as
12 being way above the values that one sees for Takeley as
13 for High House?

14 A. Yes.

15 Q. What Mr Moorcroft has done in UDC/7/D is to look at
16 a slightly broader picture, and one sees that those high
17 values over 200 micrograms per cubic metre are also
18 registered at Takeley and High House, albeit at other
19 times within a period of several hours?

20 A. Yes.

21 Q. I think you said you looked at the wind direction and
22 I think you said in chief that it was possible that
23 these high values were related to a regional peak of
24 some sort passing through this area?

25 A. That would be an explanation.

1 Q. So it certainly doesn't, as R2 might be taken as
2 suggesting, leave one with the position that Shell House
3 has recorded this abnormally high figure which really
4 must throw doubt on the data set as a whole. That's not
5 the message from the first line of R2 any more, is it?
6 A. No.
7 Q. Good. Then the other figures are much lower, of course,
8 the 4th April, and the 27th and 30th for Shell House.
9 What Mr Moorcroft sought to do helpfully on the next
10 page of UDC/7/D is to put that figure into context, the
11 figure of 84, and what he has discovered is that at that
12 time he has looked at 0400 hours to 0800 hours -- at
13 that time the wind direction, as I think you accepted,
14 was broadly in the north-west. Yes?
15 A. That's correct.
16 Q. And indeed the airport was operating on easterlies on
17 that morning. Yes?
18 A. That's correct.
19 Q. So the aircraft would be coming to the end of the
20 airport closest to Hatfield Forest and queuing there to
21 take off, and when they reached the start of roll and
22 take off with that explosion of combustion and those
23 gases leaving at 1,000 kilometres per hour, or whatever
24 it is, 230 degrees Centigrade for a 737, that was all
25 being pushed out, as it were, in the direction of

1 Hatfield Forest with a north-westerly wind behind it?

2 A. The wind would take it in that direction. The actual
3 air would be going in a slightly different direction.

4 Q. In fact, you have drawn attention to an interesting
5 phenomenon in your table R2. We are grateful to you,
6 because it is, as Mr Moorcroft has been considering with
7 his provision of the met data, quite remarkable that
8 those higher concentrations have occurred, as UDC/7/D
9 shows, largely when the wind is in the north, generally
10 in the north. That's right, is it not?

11 A. That's what this document is saying.

12 Q. And generally when the airport is operating on
13 easterlies?

14 A. I have only seen this amount of met data, I haven't seen
15 the full amount of met data.

16 Q. We have just recorded the airport was operating on
17 easterlies certainly on 4th and on 28th and 30th.
18 That's the last line.

19 A. Yes.

20 Q. If that were happening with the aircraft queuing to take
21 off at the south-westerly end of the airport and the
22 wind in the north towards Hatfield, it is not really
23 surprising that one would see lower figures at, for
24 example, Takeley?

25 A. No, perhaps not surprising.

1 Q. High House, of course, we have to be slightly careful of
2 because it is very close to the airport perimeter, is it
3 not?

4 A. It is very close and it is the other end of the runway,
5 so to speak, from the one we've been talking about.

6 Q. Indeed. Thank you for your help on that.

7 Now so far as diurnal pattern is concerned, you have
8 made your points about that, but in terms of the
9 collection of the data, I take it that you are familiar
10 with Envirotechnology, the company that collected the
11 data --

12 A. I missed that bit, sorry.

13 Q. You are familiar with the company that is collecting the
14 data at Shell House?

15 A. The NOx data, yes.

16 Q. Under contract?

17 A. I have heard of them.

18 Q. Mr Moorcroft I think told the enquiry that they were
19 under contract to do a lot of the work, the data
20 collection work for the national network under
21 instruction from the department?

22 A. As I think other companies are as well.

23 Q. They were one of those appointed, in fact?

24 A. That's my understanding, yes.

25 Q. Thank you very much.

1 I am not going to spend any more time going through
2 the details of the data, having made those general
3 points, and you helpfully having answered me in the way
4 that you have. I am going to leave you and Mr Moorcroft
5 to assist the Inquiry with as much common ground or
6 explanation where there is no common ground as you can
7 achieve.

8 What I want to do now is just understand where there
9 is disagreement on the exercise Mr Moorcroft has carried
10 out in his rebuttal proof, which is looking forward to
11 2014, and seeking to deploy the data that we have now
12 obtained from Shell House and Hatfield Forest in
13 performing what he regards as a reality check on the
14 modelling results.

15 You said Mr Moorcroft this morning, you said he has
16 effectively developed his own model. On his
17 instructions to me that's not what he has done, he has
18 just sought to examine the data that we now have for
19 Shell House and deploy it in a fairly rough and ready
20 way to carry out a reality check on results that you
21 produced?

22 A. Yes, and he is perfectly entitled to do that.

23 Q. Indeed.

24 A. But I think a couple of times, if I recall, he has
25 actually implied it was measured data, and although it

1 had been forecast from measured data he has used
2 a number of factors that come in from TGO3 in order to
3 project it into the forward. That effectively made it
4 a model, which is why I tried to draw that distinction.

5 Q. You may use that term but the inspectors know it is not
6 as if we developed a new model in the way you developed
7 a model in Mr Moorcroft's rebuttal proof. You
8 understand also he has done that in the absence of what
9 he regards as proper verification of the model by BAA.
10 That's why he has done it.

11 A. Yes, but I am not sure that is a fair way of doing what
12 he is calling a check on modelling.

13 Q. That's what you say.

14 A. Yes.

15 Q. And plainly the inspectors will have to decide whether
16 he has gone beyond the bounds of what is acceptable and
17 appropriate in the circumstances, having asked BAA to do
18 something and nothing having been forthcoming.

19 Let us have a look at the rebuttal proof, please,
20 and see where the disagreement lies. It should be
21 UDC/7/C?

22 A. I have it.

23 Q. We want section 5. We can see that the starting point
24 for Mr Moorcroft's exercise, if we look at page 7,
25 section 5 of the UDC/7/C -- it is not easy to juggle all

1 these papers. I have just lost mine, sir.

2 MR BOYLAND: It was in front of me and I was looking for it

3 elsewhere. Sorry.

4 MR HILL: 7/C, section 5 beginning on page 7. The starting

5 point is the AEA maps, isn't it, which are referred to

6 in paragraph 5. 2, the national maps of annual mean

7 background concentrations are prepared on behalf of the

8 government on a 1 by 1-kilometre grid square basis. You

9 will be very familiar with those as a tool.

10 A. I am aware of them as a tool, yes.

11 Q. 5.3, reference to the maps being available for 2005 and

12 2010. Of course, the years Mr Moorcroft wanted to look

13 at were 2006 and 2014 for obvious reasons. He refers to

14 year adjustment calculators. I understand that you have

15 agreed out of the Inquiry that he has used the correct

16 factors to apply to the 2005, 2010 --

17 A. We have agreed, yes.

18 Q. So the adjustments one makes to the 2005 and 2010 maps

19 have been made in accordance with the correct procedure.

20 Those have led to figures 1 and 2 within this document

21 come up after the text. Pages 10 and 11 of 19.

22 A. That's correct.

23 Q. One has these figures, each applied to a 1-kilometre

24 grid square, first for 2006 and then second for 2014.

25 What Mr Moorcroft has done is look at the figures for

1 Hatfield Forest and in particular the square that
2 encompasses the Shell House?

3 A. Yes. Correct.

4 Q. What one sees, of course, is that the 16.84 becomes
5 12.96 as between the 2006 and 2014 squares, and the
6 reason for that is because this is just reporting the
7 background across the region -- this is the reduction in
8 NOx emissions from a whole variety of sources?

9 A. That's correct.

10 Q. That was expected to take effect as between 2006 and
11 2014?

12 A. That's correct.

13 Q. And the calculation is in Mr Moorcroft's rebuttal, top
14 of page 8, reduction of about 23% of the annual mean
15 background as between 2006 and 2014. As a figure I
16 don't think we dispute that?

17 A. I don't dispute that or I should say I don't dispute
18 that figure.

19 Q. What Mr Moorcroft then does, having noted that that is
20 what is predicted to be the reduction in NOx emissions
21 from a whole variety of sources in that eight-year
22 period, he simply applied that 23% reduction to the 2006
23 figure he has been able to derive for Shell House with
24 the assistance of the data which has been collected.
25 That figure, which has been analysed using the Takeley

1 data and Sawbridgeworth data, gives one a figure of
2 about 30.

3 A. It is 30.2.

4 Q. 30.2. It is that sort of order. So that's the 2006
5 annual figure using the 2007 real data then calibrated
6 by reference to Takeley and Sawbridgeworth. He has
7 applied a 23% reduction to that derived from the
8 national grids and come down to about 24 -- 23.5,
9 24 micrograms per cubic metre in 2014?

10 A. Yes.

11 Q. He has then consulted your predicted concentrations
12 using the model for 2014, he had to interpolate
13 beforehand --

14 A. He did the first time, yes.

15 Q. -- from the contour lines, but you have now provided him
16 with the actual figure for Shell House?

17 A. Yes.

18 Q. In 2014, which is about 17.8 micrograms per cubic metre?

19 A. Yes.

20 Q. So we have it that your predicted figure and the one he
21 has derived using the AEA maps and the actual figures
22 for 2006, is about 6 micrograms adrift?

23 A. There is a difference of about 6.

24 Q. What he says is if that's the case at Shell House, then
25 there would be corresponding changes further to the

1 north as well. If the model is adrift at Shell House --
2 let us assume it is for the purposes of this question?

3 A. If it is systematically adrift.

4 Q. Then it would be adrift further north and in all
5 probability the 30 micrograms contour would be extending
6 into the forest?

7 A. If those two assumptions are true.

8 Q. Yes. It is also right to say that doing his comparison,
9 he has not sought to build in any extra pollution burden
10 arising from G1 in that exercise?

11 A. That element is already in the 17 that he is taking as
12 his background, because we do have a slight difference
13 in how we describe background. We take data derived
14 from the national mapping system, and there are some
15 various adjustments that take place in that. We take
16 out the explicit sources that we intend to model. So we
17 don't double count. So we reduce the background and
18 then we explicitly model the aircraft and add them back
19 in again.

20 Q. I am not asking about your figure; I am asking about his
21 figure.

22 A. Yes, but he uses our figure 17.8 in his comparison.

23 Q. All he does is -- he does not use it, he just compares
24 it. You are saying it is 17.8 at Shell House, by
25 another means he has arrived at something rather larger,

1 34% higher in fact. He doesn't actually use your
2 figure. He doesn't manipulate it in any way.

3 A. No, no.

4 Q. He just compares it. There it sits, he compares it.

5 A. Sorry. If you are going to add his difference to shift
6 the contours, you are adding his 6 on to our 17.

7 Q. What I am saying to you is that in applying his 23%
8 reduction to the 30-odd at 2006 for Shell House, he
9 hasn't as part of that process sought to factor in as an
10 extra pollution burden arising from G1, the extra
11 pollution burden arising from G1 from the extra flights
12 and the extra emissions.

13 A. I accept that in his figure; it's the next stage where
14 I think he is double counting.

15 Q. He hasn't done anything else. He has simply applied
16 a 23% reduction.

17 A. No, the way he shifts the contour implies he is adding
18 something on to the 17.

19 Q. No, he has not moved any contour. All he has said is if
20 you look at the 2006 figure for Shell House, 30.2
21 micrograms per cubic metre, apply this reduction, that's
22 the agreed national figure between 2006 and 2014, you
23 get about 24. Whereas your model is predicting 17.8.
24 That is the extent of the work that Mr Moorcroft has
25 done. He says "something looks adrift here", and if it

1 is adrift at Shell House, as we have agreed, it will be
2 adrift further north as well, and the 30 microgram
3 contour is likely to extend into the forest, bearing in
4 mind it is rubbing shoulders with the forest at the
5 present time.

6 That's right, is it not, Mr Pratt?

7 A. That way you look at it, it is okay. I am not sure -- I
8 am still concerned about the way the increment is
9 working. The value of 30 that he uses is significantly
10 larger, as I have already said, than it was at that site
11 in 2004. It was significantly larger than other sites
12 in the area and we don't know -- we have been trying to
13 explore why that might be. What I am saying is if that
14 value does include some sources from the airport or from
15 the road transport, when you project it forward by his
16 23% reduction then I still think there is -- that is
17 an element of double counting.

18 Q. Well, so you say. We completely fail to grasp where the
19 double counting comes in in that exercise, Mr Pratt.

20 Can I just go back to an earlier point you made.
21 You said the 30 is much higher than in 2004. The 2004,
22 the data for Shell House, the only data we have is for
23 a five month period?

24 A. Six months I think.

25 Q. It is not a full year's data.

1

2 A. I said six months I think. Maybe five and a half.

3 I think it finished in June.

4 Q. It is not a full year's data, and the model prediction

5 that you told me earlier you felt was a reliable one was

6 28.6 I think?

7 A. Yes.

8 Q. Which is not very far away from 30, is it?

9 A. No, a difference of 6.

10 Q. Sorry, 28.6 is not very far away from 30, which is what

11 your model is predicting for 2004?

12 A. No, the model was predicting 28 and the measured value

13 was 22.

14 Q. But the measured value was only for a five or six month

15 period?

16 A. That doesn't mean it is not similar to 30 at all.

17 Q. It doesn't mean that we can rule it out and say it does

18 not matter at all. Of course it doesn't, but you just

19 put that five month period in. You have not analysed

20 it, have you?

21 A. Sorry, I have not ...

22 Q. It has not been analysed in any way?

23 A. No.

24 Q. So the 2004 figure that the model has produced is 28.6?

25 A. If Mr Moorcroft had used exactly the same process to

1 look at the future based on 2004 data, which is
2 a similar period to that which he based his 2007 on, he
3 would have got a totally different answer, which would
4 have been the reverse of what he now gets.

5 Q. We have got up-to-date information, because we have gone
6 out and done some monitoring, Mr Pratt, for 2007, which
7 is what you haven't done.

8 Now let me move on. I think we have agreed what we
9 can agree about that and I am grateful to you for your
10 considerable assistance in that regard. We just have to
11 pause on this issue of double counting. As I explained
12 the exercise to you, simply applying the 23% reduction
13 derived from the AEA maps to the present day figure of
14 just over 30 at Shell House, comparing it with your
15 derived figure, there is no double counting there, is
16 there?

17 A. Not if you are doing that comparison.

18 Q. No. Just going back to the point about -- let us assume
19 that Mr Moorcroft is right and that your prediction for
20 Shell House is about six micrograms adrift, there or
21 thereabouts. It must be right, must it not, if one sees
22 where the contour for 2014 is predicted that one would
23 then have the contour extending well into the forest
24 into the north west?

25 A. That would be the conclusion.

1 Q. I can turn away from that now. We are doing well.

2 I want to look at sensitivities, please, the 40 MPPA

3 case.

4 It is right, is it not, that there were no contours

5 provided for the 40 MPPA case in the environmental

6 statement. Is there any reason for that?

7 A. No reason at all. I think the comparisons were in

8 tabular form, if I remember rightly.

9 Q. That's right. Volume 3, page 59. That's the comparison

10 between the 25 MPPA case and what you call the hybrid

11 sensitivity test, which is defined in the text?

12 A. Yes.

13 Q. We have 25 and 40 in the left-hand column.

14 Thremhall Farm, which is our nearest point of contact

15 with the forest, is it not, I think, we have looked at

16 that before, the Thremhall Farm line. We have 31.1

17 total NOx for 25, and at 40 we can see it goes up to

18 35.3. Then, of course, you did ultimately provide the

19 contour as part of the regulation 19 request?

20 A. Yes.

21 Q. And I think it is agreed that for the MPPA case even on

22 your predictions the 30 microgram per cubic metre

23 contour does extend into the top of the forest in that

24 case?

25 A. That's what it shows, yes.

1 Q. That is not a reason why the contour was not presented
2 with the environmental statement?

3 A. Absolutely not.

4 Q. I was trying to follow this through. What I was unable
5 to find was any analysis of the 40 MPPA sensitivity in
6 volume 10. Perhaps we should just have a look at
7 volume 10, because, of course, you point us back to
8 volume 10 at the end of your volume 3.

9 If we look at page 58 of volume 10, the nature
10 conservation chapter, page 58, 10.4.7. This is as far
11 as I can see the discussion of air quality issues in the
12 nature conservation context. That is where it is all
13 going, this debate. 10.4.7 on page 58:

14 "The conclusion from the work was that no specific
15 additional ecological impact arising from
16 airport-related nitrogen or the other elements could be
17 identified. I suggest that", and this is the important
18 bit, "the minor expansion of the 20 microgram per cubic
19 metre contour of NOx emissions predicted for the 35 MPPA
20 case would have no significant impact beyond that of the
21 general regional nitrogen deposition load."

22 Is there any discussion that I ought to home in on
23 of 30 microgram contour entering the -- I could easily
24 have missed it because it is a lengthy document. Is
25 there anything that homes in on the 40 sensitivity test

1 in ecological terms? If it is there, I am sure it will
2 be drawn to your attention in re-examination, but
3 I couldn't find, Mr Pratt.

4 A. No, I don't think there is anything in the ES.

5 Q. This is in your rebuttal proof now. This is 4/D,
6 page 6. Just on this question of the 40 sensitivity
7 case, 236, you say there -- this is in the context of
8 loading -- that:

9 "Mr Moorcroft retains the 40 MPPA sensitivity" --
10 this is the second sentence -- "in his data whereas I do
11 not. Data has been omitted from my evidence in view of
12 BAA's indication that it will accept the addition of a
13 condition limiting the throughput of the airport to
14 about 35 MPPA."

15 We have already had that indicated although the
16 point has been made that ultimately it is in the hands
17 of the inspectors and Secretary of State what happens to
18 that condition.

19 On your own case, expanding to 40 MPPA will take the
20 30 microgram per cubic metre contour into
21 Hatfield Forest?

22 A. That's what the contour is showing, yes.

23 Q. As we have seen, the nature conservation chapter doesn't
24 examine the implications of 40 in that context. Thank
25 you.

1 Now a loose or miscellaneous point. You made the
2 observation in your supplementary or evidence-in-chief
3 that the predictions now for the figure that would be
4 reached at 2014 changed slightly and there was an
5 18-month slippage for 35?

6 A. That's what I am told.

7 Q. As I understand it, you have not done any recalculation
8 of that impact of that at 2014?

9 A. No, it is a judgment.

10 Q. So as far as the inspectors are concerned, when they are
11 looking at figures, they only really have the ones in
12 the environmental statement and your evidence to go on?

13 A. That's right, yes.

14 Q. You are not suggesting that there is some factor that
15 one can apply or should apply to all those figures?

16 A. Unfortunately there isn't a simple factor that one could
17 apply.

18 Q. Nitrogen deposition. The figures are there. This is
19 dealt with in the rebuttal proofs. Mr Moorcroft was
20 asked about it. I don't propose to go over all that
21 ground. It is plain that there will be -- I will just
22 wind back a bit. We are above the critical load at the
23 moment, as we are in other locations, and the 35 MPPA
24 case will take the load higher than it would be if we
25 were at the 25 MPPA case?

1 A. By a small amount.

2 Q. If we go back to the environmental statement, there is
3 nothing very surprising about that, because as you tell
4 us in page 11 of the environmental statement,
5 paragraph 5.3.4:

6 "As the proposed development will cause
7 deterioration in air quality due to the intensification
8 in the use of the airport, there are no beneficial
9 effects to be considered."

10 Then there is that general deterioration and the
11 nitrogen deposition exceedance of the critical load is
12 just part of that overall picture. Yes? You have to
13 say yes for the transcript. They will not hear the
14 nodding.

15 A. I thought I said yes. Sorry.

16 Q. Thank you, Mr Pratt.

17 Now the contribution from the M11. It is a side
18 issue but it is one touched on in your rebuttal proof.
19 Page 11, paragraph 3.3.17, bottom of the page. I have
20 not checked the extensive errata sheet, I do apologise
21 for this, but I think that figure, the contribution to
22 concentrations at the edge of Hatfield Forest, in my
23 version I have got that corrected from 4 micrograms to
24 3 micrograms, and 13% to 10%?

25 A. On the last line there is a 15% goes down to 13%.

1 Q. Right. 15 goes to 13?

2 A. Yes. That stemmed from the transect that was given in
3 the original document was slightly in error. Having
4 corrected that error, there were consequential changes.
5 These were made available to Mr Moorcroft some time ago.

6 Q. I make no criticism. So that's three, 10% of the
7 limited value is what the model suggests might be the
8 contribution of the M11 at the edge of Hatfield Forest.

9 I think you may have been here when Mr Moorcroft
10 stated that so far as he was aware that relationship had
11 never been verified. Have you ever sought to verify it
12 yourself or what evidence of that relationship having
13 been verified?

14 A. Most of the uncertainty in the focus of verification
15 studies around roads are the near field effects. Once
16 you go beyond the near field, you know, within say a few
17 hundred metres of the motorway, the emissions would be
18 controlled by the general dispersion processes and those
19 are pretty well understood and validated elsewhere. So
20 I wasn't surprised that that was what we were seeing.

21 Q. You make the point there is most concentration on near
22 field effects in a few hundred metres. There is no
23 doubt that concentrations fall away very dramatically
24 after the few hundred metres, don't they?

25 A. Yes. Once you have got down to the relatively low

1 concentrations, you are not diluting them rapidly
2 afterwards.

3 Q. But my original point still stands. You haven't as far
4 as I'm aware got access to any specific verification of
5 this particular effect of this relationship?

6 A. Not that I can call to mind, other than the general
7 principles.

8 MR HILL: Thank you very much, Mr Pratt. Thank you, sir.
9 Well within my time estimate I think.

10 MR BOYLAND: It is indeed. Thank you. I guess from the
11 seating position it is Ms Hannett.

12 MS HANNETT: That is absolutely correct. I will
13 cross-examine Mr Pratt.

14 MR BOYLAND: Do carry on.

15 MS HANNETT: May I just add two additional documents. You
16 should have had documents given to you this morning, I
17 am afraid there were two documents omitted from that.
18 I wonder if those could be got out and added to the
19 file. They are CD/153, which is the IPCC report, and
20 CD/157, which is the Stern report.

21 A. Could you say that again, please.

22 MS HANNETT: Of course I can. CD/157 and CD/153.

23 A. I am afraid I don't have either of those.

24 MR PHILLPOT: Sorry. We are missing a copy of the 153 for
25 Mr Pratt. One is being gathered.

1 MR BOYLAND: Which is the Stern report.

2 MR PHILLPOT: If that's not going to be immediately referred
3 to then that can be fetched while questioning continues.

4 MS HANNETT: That was going to form the tail end of my
5 cross-examination. Perhaps that could be provided in
6 the meantime.

7 MR BOYLAND: In that case we will proceed. Thank you.

8 Cross-examination by MS HANNETT

9 MS HANNETT: Good afternoon, Mr Pratt.

10 A. Good afternoon.

11 Q. Mr Pratt, there is a number of matters on which I was
12 intending to ask you questions but Mr Hill has got in
13 there before me, as it were, so I will indicate that as
14 I go along and pick up any additional matters with you.

15 The first point is this. You were asked a series of
16 questions by Mr Hill at the outset in relation to your
17 expertise, the ecological importance of Hatfield Forest,
18 the location of the 30 contour in relation to
19 Hatfield Forest. We noted your answers to those and I
20 don't repeat them save for the inspectors to note those
21 were matters on which SSE intended to cross-examine.

22 The first area I wanted to look at then, Mr Pratt,
23 is the type of model that you have used in the ES.
24 I wonder if you could just turn up CD/280, which is the
25 report of the project for the sustainable development of

1 Heathrow. Starting with the executive summary.

2 Sir, I don't know how your report is numbered.

3 Certainly mine is rather different to that of

4 Dr Elliott, who I have been comparing notes with. The

5 first reference I wanted to go to is paragraph 8 on

6 page 2 of the executive summary. I don't know if that

7 corresponds with anyone else's page numbers.

8 MR BOYLAND: That corresponds with others anyway.

9 MS HANNETT: That's helpful, sir.

10 MR BOYLAND: That's a start.

11 MS HANNETT: Paragraph 8 sets out that the Department of

12 Transport, the aviation and environmental division set

13 up three panels of air quality related experts and they

14 were to advise the government on ways to strengthen and

15 update the air quality assessment of Heathrow Airport

16 for the white paper. In paragraph 11 it sets out the

17 overall process adopted by the panels. In particular

18 bullet point 1, which was to review the technical and

19 scientific robustness of previous local air quality

20 assessment work undertaken by the DFT for Heathrow.

21 So it is clear just from those initial references in

22 the executive summary that this was a panel commissioned

23 by the government as a result of governmental concern

24 over the ability of existing air quality models to

25 properly assess air quality at airports. Do you agree

1 with that?

2 A. Yes, I think it was specifically in the context, as
3 I understand it, on the commitment to ensure that if
4 a third runway was at Heathrow, it would comply with air
5 quality standards.

6 Q. You accept that by setting up a panel in order to review
7 the existing models that had been applied previously
8 there must have been some concern within government as
9 to the robustness of those models?

10 A. Not necessarily their robustness but maybe their
11 accuracy.

12 Q. Paragraph 14 of executive summary.

13 A. Could you repeat that number, please.

14 Q. Paragraph 14. It is at page 3 of my copy. The first
15 line sets out:

16 "The work of the three technical panels has been the
17 subject of an external independent and rigorous peer
18 review process following the office of Commissioner for
19 Public Appointments procedures."

20 So subject to independent peer review. Correct?

21 A. That's correct.

22 Q. Also in the executive summary at paragraph 25 we can see
23 the key conclusions of the peer review panel set out in
24 the bullet point underneath. I don't need to rehearse
25 those, but the thrust of that is that the independent

1 peer reviews concluded that the conclusions of the PDSH
2 were robust and sustainable, if you like?

3 A. It does, yes.

4 Q. It is correct, isn't it, that one of the purposes of the
5 report was to compare the different dispersal models
6 used to monitor air quality? That was the idea, to see
7 what was out there, see how they married up against one
8 another and see which was the best, as it were?

9 A. That's correct.

10 Q. This is where my page numbering goes a little bit
11 haywire, so I will make sure everyone is with me with my
12 references. If I could ask you to turn to chapter 1 and
13 in particular it is page 24 of my document, and if that
14 reference doesn't assist, it is just above paragraph 85
15 of chapter 1.

16 A. Chapter, did you say 85?

17 Q. Chapter 1.

18 A. Chapter 1.

19 MR BOYLAND: Page 24, if you have the same -- ah, you have
20 the original documents.

21 A. I unfortunately have a printed one.

22 MS HANNETT: That's where it doesn't work against the copy I
23 have.

24 A. I couldn't get one from the website, so they sent me
25 one.

1 Q. Mr Pratt, if you look at paragraph 85, that should be
2 located under a heading "What Dispersal Models Have Been
3 Compared"?

4 A. Did you say 85?

5 Q. Paragraph 85.

6 A. My paragraphs are numbered 1.1, 1.2.

7 Q. My understanding is the 1. relates to the chapter.

8 A. So if I go to 85.

9 Q. That's where Dr Elliott and I have got to anyway in our
10 discussions on this.

11 A. I have an 85:
12 "All models incorporate ..."

13 Q. That's unfortunately not mine. I had a feeling we were
14 going to have this problem.

15 A. I am being given a copy that might be the same as yours.

16 Q. That's very helpful indeed. I am very grateful.

17 A. Thank you very much.

18 Q. Mr Pratt, I am hoping after that intervention you will
19 have paragraph 85, which is on page 24 of my copy.

20 A. I have that now.

21 Q. I am very grateful. The point that I want to take you
22 to really simply sets out the dispersal. It is
23 dispersal models that have been compared. We can see in
24 the top bullet point there is a comparison between
25 amongst other things the ADMS bespoke and the ADMS

1 airport. Correct?

2 A. Yes.

3 Q. The ADMS is the model BAA have adopted for their ES.

4 Correct?

5 A. I would imagine it is the one referred to as bespoke but

6 that's not a word -- that's not how I would describe it.

7 Q. Would you accept that that's --

8 A. I am not going to contest the wording.

9 Q. If I could ask you to turn forward a couple of pages to

10 page 27, that sets out there --

11 MR PHILLPOT: Can you give the paragraph number, because my

12 page numbers don't correspond?

13 MS HANNETT: It is table 1.2. It is immediately underneath

14 paragraph 95.

15 MR PHILLPOT: Got it. Thank you.

16 MS HANNETT: That then sets out the types of comparison that

17 are being made between the different models. Do you

18 have that, Mr Pratt?

19 A. I do.

20 Q. Again I don't intend to through them one by one, but

21 they are -- none of those types of comparison is unique

22 to Heathrow, is it? There is nothing specific about

23 Heathrow when one compares the criteria there that means

24 that one can't extrapolate across to Stansted. Is that

25 correct?

1 A. These are just methods of presenting information so they
2 apply to any location in the world I imagine.

3 Q. If I could ask you to turn over one page for the benefit
4 of those who don't have the same copy as us to summary
5 bullet points above paragraph 96?

6 A. Yes, I have that.

7 Q. The first bullet point says that:
8 "ADMS airport should be used for the main modelling
9 work at Heathrow."
10 Do you see that, Mr Pratt?

11 A. That's what it says, yes.

12 Q. That's a conclusion, is it not, in this governmental
13 report that says of all the models that have been
14 compared, the one that is most suitable for studying air
15 quality at airports is ADMS airport?

16 A. That's the conclusion they reached on this study, but
17 I think there is a number of reasons that it doesn't
18 preclude other models being used.

19 Q. You don't disagree with that finding, though, do you,
20 Mr Pratt?

21 A. I wasn't a member of the committee, so I read it in the
22 same way you do.

23 Q. You have no reason to disagree with that?

24 A. No, but it doesn't mean it's the only model you can use.

25 Q. If I could just ask you to turn up your appendices to

1 your proof, BAA/4/C, and in particular if I could ask
2 you to turn to paragraph 1.9, which is at page 12 of
3 your proof?

4 A. Can you just let me catch you up. Paragraph number
5 again?

6 Q. 1.9 on page 12. You say in the first sentence in 1.9
7 that:

8 "I am satisfied that the assessment is robust and
9 provides our best estimate of future concentrations."

10 If I could ask you just to go forward to 2.48.

11 A. Do you have the page number for that?

12 Q. Page 22.

13 A. 22.

14 Q. You say there:

15 "I am satisfied that the ES assessment was
16 undertaken using the best model available."

17 If you were doing the work today, Mr Pratt, the best
18 model available would be ADMS airport. That is correct,
19 is it not?

20 A. It's the model that was concluded to be the one for
21 Heathrow in that report, and from what I understand of
22 the differences between the two models we're referring
23 to, I would expect ADMS airport to produce slightly
24 lower concentrations than the model we're using because
25 of two features within ADMS airport that aren't in the

1 original version of ADMS which is referred to as
2 bespoke.

3 So I suppose if I was doing it now, and my
4 understanding is correct, we would be talking about
5 slightly lower concentrations across the Stansted area.

6 Q. You say that, Mr Pratt, but could I just ask you to turn
7 up SSE/33?

8 A. I have it.

9 Q. Annex 2, please?

10 A. Yes.

11 Q. This is a letter written by Dr Carruthers, who, as
12 I understand it, is the director of Cambridge
13 Environmental Research Consultants?

14 A. Yes, I have met him.

15 Q. And Cambridge Environmental Research Consultants are the
16 company that produces the ADMS family of models. That's
17 right, is it not?

18 A. That's correct.

19 Q. Just to recap on what you suggested, you said if you
20 were to use ADMS airport, one would expect slightly
21 lower concentrations. That's the answer you just gave
22 me. If one looks at the bottom of what's marked as
23 page 4, Dr Carruthers says:

24 "Our work with the ADMS and other models suggests
25 Pratt should be careful using comparisons between the

1 AEA methodology and monitored data at Heathrow to infer
2 model performance, ie the tendency to overpredict at
3 Stansted without an understanding of the cause of the
4 tendency for overprediction at Heathrow and hence
5 whether the process involved is transferable."

6 What he is saying there is one cannot be sure, if
7 one transfers ADMS airport from Heathrow to Stansted,
8 that there would be the same consequences?

9 A. Yes, but my understanding of what he is saying, it is
10 without an understanding of, and I think we do have
11 an understanding of why our model performs slightly
12 differently to ADMS airport, and I am sure Dr Carruthers
13 would intend ADMS airport to be used at every other
14 airport in the country because that's why he spent a lot
15 of time and money investing in that model.

16 I also note he doesn't actually criticise our use of
17 ADMS in his letter. He just makes a number of
18 observations and you will have seen the document we put
19 in, in response to that letter, from someone who was on
20 the panel and a member of my team.

21 Q. It is a short point really, Mr Pratt. Simply this: if
22 you were to undertake this assessment again today, you
23 would accept, wouldn't you, that following the PSDH
24 report the best model that would be available for you to
25 use at Stansted would be the ADMS airport, and that's

1 the one you would use?

2 A. That's not axiomatic I would use it. The question you
3 asked me was would I use it. I said I might use it and
4 if I did what I would expect to happen would be to
5 produce concentrations that are lower than those we have
6 currently produced for the two reasons that we have not
7 got with any model we have used the additional treatment
8 of the hot emissions from the aircraft or the dilution
9 caused by vehicle turbulence on motorways and trunk
10 roads.

11 Q. Mr Pratt, you were then asked a series of questions on
12 model verification by Mr Hill, by which I mean the
13 process of testing models outwards against measured
14 data. I have noted your answer to those and I don't
15 repeat those, so there is just simply one point I wanted
16 to pick up again in the PSDH report. I wonder if you
17 could just have that to hand. In particular if I could
18 ask you to turn to chapter 2.

19 MR BOYLAND: Can you just remind us what document this is?

20 MS HANNETT: It was the document I was referring to a moment
21 ago. It is the project for sustainable development at
22 Heathrow.

23 MR BOYLAND: CD/2.

24 MS HANNETT: Yes. I beg your pardon, sir.

25 If I could ask you to go to chapter 2, it is my

1 page 29, and paragraph 101.

2 A. 29. I am at paragraph 77.

3 Q. I am so sorry. It's chapter 1, I beg your pardon. This
4 document was always going to give me problems with the
5 numbering. Chapter 1.

6 A. Back in chapter 1.

7 Q. Page 29, paragraph 101.

8 A. 101. I have it.

9 Q. The heading, just to put this in some context, is how
10 can the recommended dispersion model be improved?

11 Underneath that at paragraph 101 it is stated:

12 "A key element in assessing the accuracy of the
13 model output is comparison with monitoring data."

14 It goes on to say in the third sentence:

15 "The large number of monitoring locations cited
16 specifically to provide stringent tests of model output
17 should be particularly valuable."

18 So there we have the government review of the best
19 air quality tests at Heathrow, stating that it is
20 important to have a large number of monitoring locations
21 to verify the model data that's produced?

22 A. But I think you have to understand the circumstances of
23 this piece of work. ADMS airport at that time, as far
24 as I'm aware, had never been tested on a modelling
25 study. The code had been drafted, as our reply to your

1 letter states, and certainly no information was offered
2 to the PSDH that this verification work had been done.
3 So this was effectively the first test I am aware of of
4 ADMS airport.

5 I also understand some of the other models might not
6 be widely used in the UK. So it is quite understandable
7 for PSDH and in the context of PSDH to undertake such
8 a large verification study, and certainly I would be
9 very surprised if that study becomes the benchmark for
10 every modelling study that's done in the future.

11 MR BOYLAND: Just before we move away from that document, if
12 we are, I wonder if it would be possible for us to have
13 a copy of the front cover of the document. Certainly in
14 the version that we have there is nothing to identify
15 what the document actually is.

16 MS HANNETT: Sir, I can certainly do that for you. I will
17 have that done by the end of the day.

18 MR BOYLAND: Thank you.

19 MS HANNETT: Just moving on, Mr Pratt, to some of the
20 assumptions and uncertainties, I think I can say you can
21 put CD/202 away for the moment at least.

22 MR PHILLPOT: Can I ask, can we also put SSE/33 away, which
23 is a lever arch file?

24 MS HANNETT: Yes, you can.

25 Just starting off, if I may, with the fleet mix you

1 have assumed for the model, it is correct, is it not,
2 that predicting the aeroplanes that might be in use by
3 the airlines in 2014 is an uncertain science?

4 A. I am not sure "uncertain science" is the way I would
5 describe it. The fleet mix that we have used is based
6 on information from the forecasting team at BAA, and I
7 have no expertise to question that. The engine
8 assignment to those aircraft has -- we have had advice
9 from QinetiQ on that assignment. So I believe the fleet
10 mix is the best estimate of what will happen in the
11 future, but I accept there is uncertainty.

12 Q. If I could ask you to turn up CD/144, which is the
13 review of the ES by Bureau Veritas. If I can ask you to
14 turn to page 16 of that report, the context of this is
15 that a series of questions was posed by UDC to
16 Bureau Veritas for their response. Question five deals
17 with a question from Friends of the Earth in relation to
18 predictions of NOx.

19 Turning to the response, the first paragraph, the
20 last half of that:

21 "Generally though it is felt the assumptions are
22 realistic rather than optimistic, although by definition
23 there must be some uncertainties in forecasting air
24 quality climate and conditions and aircraft fleet mix in
25 2014."

1 So we see there Bureau Veritas concurring with the
2 point that you have just made that there are some
3 uncertainties in fleet mix predictions?

4 A. Yes.

5 Q. In relation to the next paragraph, in their response,
6 Bureau Veritas go on to say that:

7 "As the 30 contour skirts the edge of
8 Hatfield Forest for the 35 MPPA case, and would almost
9 certainly include parts of the forest for the 40 MPPA
10 case, it is agreed that changes in the assumptions
11 regarding the aircraft fleet mix, or indeed the NOx
12 performance in 2014, could be sufficient to cause
13 further encroachment."

14 A. I think I have to say changes to the fleet mix could
15 decrease emissions as well as increase them. So it's
16 not axiomatic that every change you make will increase
17 emissions.

18 Q. That's right. It could go either way, could it not;
19 just as it might decrease, it might also increase. That
20 is the point that's being made there.

21 A. I am not disputing that point, but there is a general
22 thrust in a number of documents that a change means
23 an increase and in my view there is a likelihood the
24 change could go either way. Providing we bear that in
25 mind, then I am comfortable, which is why the contours I

1 have produced are my best judgment on the information
2 available.

3 Q. That's right except that we have got to be particularly
4 cautious in these circumstances where we have a 30
5 contour skirting the edge of Hatfield Forest, which you
6 would agree with Mr Hill is a site of great ecological
7 importance?

8 A. Other people have told me it is of great importance.
9 I understand that. What I am trying to say is to make
10 a change in fleet mix because you have a particular
11 areas that's sensitive does not mean that the contour
12 would necessarily move into the forest as a result of
13 that change. You also have to have a rationale on how
14 you are going to make that change before you can make
15 it, irrespective of what the conclusion is.

16 Q. Mr Pratt, perhaps we can agree this. It is an area of
17 uncertainty, is it not?

18 A. I said in my evidence and in the ES that there was
19 uncertainty in these matters.

20 Q. If I could ask you just to turn over -- perhaps to put
21 it in context I should read out question 6, which is the
22 next question posed by UDC:

23 "To what extent has the recent work as part of the
24 sustainable Heathrow project to refine air quality
25 modelling been reflected in the approach at Stansted?"

1 I understand that's a reference to the document
2 CD/280 that we have just spent some time looking at?

3 A. Yes.

4 Q. If we turn over the page, what Bureau Veritas have done
5 is set out a number of the PSDH recommendations on one
6 side of that table, and on the other side of the
7 table set out the response that one can find in the ES.

8 Just glancing down those, one I particularly wanted
9 to look at is the second from the bottom, where PSDH
10 recommendation is set out as being engine deterioration
11 can affect emissions:

12 "It is recommended that fuel flow during the LTO
13 cycle is increased by 4.3%, and NOx emissions by 4.5%,
14 to allow for engine deterioration."

15 The response from Bureau Veritas:

16 "It does not appear that any allowance for engine
17 deterioration has been included in the emissions
18 calculations."

19 Mr Pratt, is that correct?

20 A. I would have to go and check on that level of detail,
21 because I don't think we put that in the documentation
22 before the Inquiry. I certainly don't remember.

23 I would have to check on that. I am happy to do so.

24 Q. Thank you, Mr Pratt.

25 Just a couple of quick questions on your BAA/4/F,

1 and in particular table R1.

2 MR BOYLAND: Are we going to look at the versions in the
3 erratum again?

4 MS HANNETT: Sir, I don't think it matters too much for the
5 purposes of this question. I don't think one needs to
6 look at the figures in the table. It is just the
7 background rather than going into the detail of the
8 figures.

9 A. The figures in R1 haven't changed anyway. It is just
10 the dates that have changed.

11 MR BOYLAND: Yes, that's true.

12 MS HANNETT: You say you have put in the model test for
13 2003/2004, and of course we have before the Inquiry
14 monitored data at Shell House for 2007. Have you
15 modelled for 2007 Shell House?

16 A. No.

17 Q. Is it possible to do so?

18 A. I'm tempted to say no. We would have to get all the
19 emissions data together, all the road traffic data
20 together, the right meteorology. Then we would have to
21 run with the models and we are talking about
22 a significant period of time to do that. So I couldn't
23 go home at the week-end and bring it in on Monday.

24 Q. Because that would be of some assistance to the Inquiry,
25 wouldn't it, in the sense that that is the only -- with

1 the exception of --

2 A. Well, there was monitoring data in Shell House in 2004
3 and that table does illustrate the sort of model
4 concentration we had at that location against the
5 measuring data at that point. So while it is true to
6 say we have not done it for 2007, there is a comparison
7 for 2004, and certainly it is not my experience of an ES
8 process that you model every year followed by the next
9 year and next year. You have to take points in time and
10 do work for a baseline, or a current year as it is
11 sometimes referred to, and then development, which is
12 what we have done. But it is certainly not common
13 practice to repeat all those calculations in some
14 intervening year.

15 Q. If I could just change tack somewhat. I wanted to ask
16 you some questions about odours and oily droplets.
17 These are dealt with in the ES?

18 MR BOYLAND: If you are changing tack, would this be a good
19 point for a break?

20 MS HANNETT: Yes.

21 MR BOYLAND: It would be best if we could break before we
22 deal with that. We will adjourn until 3.35 then. Thank
23 you.

24 (3.20pm)

25 (Short break)

1 (3.35pm)

2 MR BOYLAND: The Inquiry is resumed.

3 MS HANNETT: I want to ask you some questions about odours
4 and oily droplets. This is dealt with at sections 8.2
5 and 8.3 of the environmental statement. Did you have
6 any responsibility for this section of the ES?

7 A. It was done by a member of my staff, under my
8 supervision.

9 Q. Is this something which you are able to talk to, on
10 which you are able to answer questions?

11 A. I hope so, yes.

12 Q. If I could just ask you, first of all, to turn up CD/26,
13 which is the report by BAA public consultation, and in
14 particular if I could ask you to turn to page 35.

15 A. I have it, yes.

16 Q. Table 25 is the table that sets out some of the concerns
17 which have been expressed in the course of consultation
18 by individuals. We can see there about halfway down the
19 comment concerning oily deposits. We have two parish
20 councils there, four individuals. So that was a matter
21 of some concern to individuals at the consultation
22 stage?

23 A. Yes.

24 Q. Similarly in relation to odour we have Braintree
25 Business Council, two parish councils and five

1 individuals. So again a matter that was raised as
2 a topic of concern by individuals in the course of
3 consultation?

4 A. I see that.

5 Q. If I could ask you to turn you ES volume 3, and in
6 particular start with 8.2 and odours. 8.2.1, ES states
7 that:

8 "Little or no historical data are available relating
9 to odour complaints received at Stansted Airport."

10 Presumably that was because complaints about odours
11 had not been routinely recorded by BAA?

12 A. Received by BAA or recorded. They may not get the
13 complaints.

14 Q. What hasn't been, at least as far as I have seen, there
15 is no evidence before the Inquiry of the level of
16 complaints received prior to the writing of the ES, is
17 there?

18 A. Well, I spoke to the people concerned and, in fact, my
19 colleague did as well at Stansted, and they had no
20 records of complaints.

21 Q. Mr Pratt, did BAA have any system for recording them,
22 had they been received?

23 A. I understand they would have been recorded as part of
24 their noise recording system.

25 Q. So just to be absolutely clear then, is it your evidence

1 there were no complaints received prior to the
2 preparation of this environmental statement?

3 A. I have not been advised of any.

4 Q. So the way the ES dealt with the issue of odours was to
5 undertake an odour survey between August and
6 November 2005. There is a reference to that in 8.2.2.
7 I am going to come back to that in a moment because you
8 don't set out --

9 A. Sorry. There are two things going on here. The airport
10 undertook a survey between those dates which was part of
11 the section 106 agreement I think, and I was not party
12 to that survey, and I understand it was done through
13 a series of questionnaires to a large number of people
14 of which they got some I think 90 responses out of
15 several thousand.

16 Q. 99 I think it was the response rate?

17 A. Sorry, yes. That's to my mind not quite the same as
18 someone who complains about an odour.

19 Q. No, I was not trying to compare the two. I was moving
20 on to say the way in which BAA had gone on to assess
21 these matters was to do an odour survey?

22 A. I was trying to draw a distinction: 8.2.2 is a
23 commentary on what STAL were undertaking. The table of
24 data and Heathrow and Gatwick information is work we
25 undertook to look at the situation around other major

1 airports.

2 Q. Just so I am clear on what you just said, you said the
3 odour study was something that was done by BAA --

4 A. That one referred to in 8.2.2, yes.

5 Q. Then there is some further work in 8.2 which I am going
6 to go on to deal with in a moment which was something
7 you undertook for ES. Correct?

8 A. That's correct. Just for the sake of clarity, the STAL
9 survey is reported in the regulation 19 response
10 I think.

11 Q. I am going to come on to that in a moment, Mr Pratt.
12 What you have done in the rest of 8.2 is look at
13 odour studies previously done at Heathrow, Manchester
14 and Birmingham. You conclude at 8.10, so over the
15 page on page 30 -- the headline of the comparison you
16 have undertaken is that the review of the odour
17 complaints does not show a clear dependence on number of
18 aircraft movements.

19 In other words, what you are saying is as you have
20 an increase in ADMS, it doesn't follow you get
21 an increase in odour complaints?

22 A. That's what the data appears to be showing, but there
23 are very small numbers and I am sure any statistician
24 would be very concerned about drawing any conclusions
25 from the levels of information we have on the

1 complaints.

2 Q. In fact, if one turns to CD/144, which is the
3 Bureau Veritas review of the ES, and in particular at
4 page 5, this is dealt with at the bottom of the page in
5 response to section 8.2. This is Bureau Veritas
6 reviewing what has been done in the ES at section 8.2.
7 The second sentence in:

8 "However, the year by year variation in aircraft
9 movements at individual airports is too small to
10 identify a relationship. If the data are pooled, as
11 shown below, then there is a stronger suggestion of
12 a link."

13 If one turns over the page to figure 1, it has
14 plotted the increase in ADMS along the bottom axis and
15 the increase in odour complaints along the left-hand
16 axis. What one sees is a greater correlation there with
17 pooling the results than one saw by taking each of the
18 individual odour studies one by one?

19 A. Yes, that's what it says, but I did take advice from
20 someone on our team who has a better understanding of
21 statistics than I do and they advised that was not
22 a valid comparison to pool the data because you have all
23 sorts of different populations around the airport. So
24 it is not a valid comparison.

25 Q. If I may say so, that's exactly what you are comparing

1 to do by comparing Heathrow, Gatwick, Birmingham with
2 Stansted, is it not? That's precisely what you have
3 undertaken in 8.2 of the ES?

4 A. Yes, but I have not tried to do it in a way -- sorry. I
5 was just looking at the complaints on an airport by
6 airport basis. I think going beyond that is, shall we
7 say, even less robust.

8 Q. So you would accept from what you just said then that if
9 one looks at each of the airports which you have
10 examined in 8.2, your conclusion in 8.2 that an increase
11 in ADMS doesn't necessarily lead to an increase in odour
12 complaints, one simply cannot draw that conclusion, can
13 one, from the data you have set out in 8.2?

14 A. I think I said earlier the population of complaints is
15 so small it's very difficult to draw conclusions at all.

16 Q. If I could just turn up the odour survey, CD/22, and in
17 particular it is appendix A/2 towards the back of that
18 document?

19 MR BOYLAND: This is in the regulation 19 response?

20 MS HANNETT: That's right, yes.

21 Mr Pratt, do you have that?

22 A. Yes.

23 Q. Just starting at page 4, just to put this into some
24 context, section 3 states that, in the methodology:

25 "Local residents were asked to report any odour

1 occurrence. When a report of odour was raised, they
2 were asked if more detailed information could be
3 provided."

4 Section 4 deals with the collection of data. This
5 odour survey took place between August and
6 November 2005.

7 So just flipping towards the end of the document
8 where the results are recorded, in particular at page 13
9 section 6, the second substantive paragraph after
10 heading 6, data analysis:

11 "There was a total of 99 replies."

12 That is a reasonably high number between August and
13 November, isn't it, a matter of I suppose four months?

14 A. Yes, but, as I understand it, there was a large number
15 of questionnaires sent out and 99 were the number of
16 responses they got back. So I believe that's actually
17 a very low percentage of returns, and if -- I don't
18 doubt that some people do detect odours from aircraft,
19 but given the level of concern that there might be in
20 the neighbourhood, I would have thought a significantly
21 larger number of people would have replied to a question
22 of "Do you smell odour?" or words to that effect.
23 I thought 99 was a remarkably low number.

24 Q. That's not quite right. If one turns back to the
25 methodology on page 4 -- sorry to flip you around

1 documents -- you sees under section 3, background, in
2 the methodology local residents were asked to report any
3 odour occurrence.

4 In effect it was asking for complaints to be
5 reported, wasn't it? It wasn't a general invitation to
6 report generalised problems of odour; it was a targeted
7 question, "Have you smelled an odour on a particular
8 day?" That's what was asked.

9 A. It was a targeted response to the 14,000 recipients.

10 Q. So I will put the question again. 99 discrete
11 complaints of odour over a period of four months is
12 a reasonably high response, is it not?

13 A. In that context it is, provided those were all genuine
14 responses and due to the airport, and I have done some
15 research in odour and getting information on odour
16 complaints that are valid is exceedingly difficult.

17 Q. Just turning over the page to the type of complaints
18 that were made, about the fourth paragraph down
19 beginning:

20 "Most Respondents ..."

21 On page 14:

22 "Most respondents indicate that the odour strength
23 was strong or very strong."

24 Of course, as the paragraph goes on:

25 "There is no objectivity to this scale. It rather

1 indicates that the respondents felt that the odour they
2 experienced was strong or very strong, suggesting that
3 it was noticeable and obvious."

4 So ...

5 A. I don't doubt that, that's their view.

6 Q. A couple of paragraphs down, beginning with:

7 "61% of Respondents ..."

8 The question about what was the type of smell:

9 "61% of the respondents replying to question about
10 odour characteristics specifically mentioned the odour
11 was aircraft-related, eg, kerosene, aviation", and so on
12 and so forth.

13 A. Yes.

14 Q. So again I take your point that one cannot be certain as
15 to the source of the smell, but quite a high percentage
16 of those complaints link an airport-related smell or
17 an airport-related quality to the smell they
18 experienced.

19 A. I see that.

20 Q. So let us just turn back to how those are dealt with in
21 the ES. I think you deal with the conclusions of the
22 odour survey at 10.3.11, which is on page 51.

23 A. 51 did you say?

24 Q. As I read 10.3.11 and 10.3.12, you rely on two things to
25 say that odours are not a problem. The first is when

1 one looks at airports such as Manchester, Gatwick and so
2 on and so forth, there is no correlation between
3 increase in ADMS and increase in odour complaints.
4 That's in 10.3.11. You have accepted that's not right,
5 haven't you?

6 A. Sorry. Could you ask that question again? I am having
7 trouble hearing you.

8 Q. I am so sorry. I will speak a little closer to the
9 microphone.

10 In 10.3.11 and 10.3.12 you set out two factors which
11 you then use to conclude that odours are not
12 a significant problem at Stansted. The first is what we
13 call the Heathrow little detail, your study of the other
14 airports in the UK, and your conclusion that there is no
15 correlation between increase in ADMS and increase in
16 odour complaints. That's at 10.3.11. Yes?

17 A. Yes.

18 Q. As we have already been through, that's not
19 a particularly sustainable conclusion, is it?

20 A. The data is very poor.

21 Q. And you go on to say at 10.3.12:

22 "Against this background", ie the lack of
23 correlation of ADMS and increasing complaints, "and the
24 low level of odour complaints at Stansted ..."

25 Now when one looks at the odour survey, 99

1 complaints within four months, again that conclusion
2 can't be sustained either, can it?

3 A. Well, I hadn't -- I had only got the number of 99 when
4 this text was written. I had not seen the report and I
5 am not aware of complaints at the airport since that
6 survey.

7 Q. It is correct, isn't it, when one looks at the odour
8 survey that I have taken you through today, there is
9 certainly a good basis on which the inspectors could
10 conclude that odours are a problem at Stansted Airport
11 and something they should take into consideration?

12 A. I think the conclusion is the evidence is very poor as
13 to whether this is a substantial number of complaints,
14 and there is no clear correlation -- even if you take
15 the approach of Bureau Veritas and you ignore all the
16 statistical point comments, you are getting an increase
17 of 2 per whatever number of thousand movements it is.
18 That against the current level of complaints, even if
19 you take the 99 as all valid, is a very, very small
20 change.

21 Q. Mr Pratt, I just want to look at oily droplets, if I
22 may. Back to 8.3.

23 A. Can I just say before you start there, the data on oily
24 droplets is even poorer than odour.

25 Q. That's my first question, Mr Pratt. Go on, please carry

1 on.

2 A. That's all I want to say.

3 Q. It is really the same point as I was asking in relation
4 to odour studies. You say at 8.3.2:

5 "Little information is available regarding oily
6 droplets that seem to be associated with nearby
7 airports."

8 The first question: does BAA keep a record of any
9 complaints received about oily droplets?

10 A. When I asked them, they had no records of a complaint in
11 that area.

12 Q. I suspect that rather answers my second question, which
13 is whether or not any analysis of any odour droplets
14 complained of has taken place at Stansted?

15 A. I am only aware of one analysis that was undertaken
16 which related from the ecologist being out on site and
17 found something untoward. We did some analysis on it
18 and it was a -- what is the word -- I'm trying to think
19 of a polite word for it. Can I say it was material
20 excreted from caterpillars was the conclusion we
21 reached, even though it looked like droplets.

22 Q. Did you say cattle or caterpillars? It is a very
23 important extinction.

24 A. It looked like a deposit that might have come from
25 caterpillars, and it was at the end of the runway as

1 well. So that's the only one I am aware of.

2 Q. My final topic, your calculations of CO2 emissions.

3 I wonder if I could ask you to turn up BAA/4/C, in

4 particular Table 5.3 on page 7.

5 A. Sorry. Could you give me that reference again?

6 Q. Certainly. 5.3 on page 7.

7 A. I have it.

8 Q. As a understand it, this table is your calculation of

9 CO2 emissions from Stansted at 25 million and 35 million

10 passengers per annum in 2014?

11 A. That's correct.

12 Q. In column 2 we have a total of 2,974.1 million tonnes

13 per annum. Correct?

14 A. Yes.

15 Q. That's for the 25 MPPA case. For 35 MPPA it is

16 an increase to 4,036.3 million passengers per annum?

17 A. No, sorry, the units are kilotonnes.

18 Q. Do you have a figure for the baseline calculation on

19 this table, Mr Pratt?

20 A. What are you calling the baseline?

21 Q. Do you have a figure for what it is in 2004, 2005, 2006?

22 A. No, I did not do that calculation.

23 Q. As I understand Table 5.3, is that simply to passenger

24 aircraft or is that also including --

25 A. That's total movements.

1 Q. Total movements?

2 A. Yes. All the air quality work is based in total
3 movements, not PATMs.

4 Q. Do you have a breakdown for the CO2 emissions from cargo
5 flights?

6 A. Not a breakdown, they're included in that number.
7 That's why I say it is total movements which includes
8 all PATMs, all cargo movements and all transfer flights
9 where the aircraft is in the wrong place.

10 Q. When you made a calculation, can you confirm only the
11 emissions from outbound flights had been included in
12 your estimates?

13 A. We had adopted the convention of one way for the -- the
14 internal flights are two way but the external flights
15 that are non-UK are one way.

16 Q. It is correct, is it not, that at Stansted about two out
17 of every three passengers are domiciled in the United
18 Kingdom; it may not be a figure that's within your
19 knowledge?

20 A. I have no knowledge.

21 Q. Perhaps you can take that from me. If I am wrong, I am
22 sure I will be corrected subsequently.

23 A. I am sure I will be told.

24 Q. If that's right, that two out of three passengers are
25 domiciled in the UK, if you had allocated the CO2

1 omissions on the basis of the country of residence of
2 the passengers, you would have arrived at
3 a significantly higher figure for the Stansted CO2
4 omissions?

5 A. Sorry. I don't understand the logic of the question.

6 Q. The logic of the question is this. You said you
7 calculated your CO2 omissions on the basis of outbound
8 flights only. That's the basis on which you calculated
9 the number of flights in and out, if you like?

10 A. Yes. Because there is an apportionment of international
11 flights to countries, all the emissions I have ever seen
12 of international flights are based on one way trips to
13 the first port of call after leaving the UK airspace.

14 Q. If you had apportioned trips instead of taking a 50%, if
15 you like, baseline, if you had apportioned that by the
16 domicile of the passenger on the plane, then would have
17 got a rather higher CO2 result?

18 A. Sorry. I am obviously not being bright here. I don't
19 understand the number of passengers going to and fro on
20 these aircraft as the basis of the calculations where
21 they are domiciled, I don't see how that comes into the
22 calculation I am presenting in this table.

23 Q. Well, Mr Pratt, perhaps it is my fault for not being
24 clear enough. I will leave that for now.

25 MR BOYLAND: Just to be clear, are you suggesting that

1 a different proportion of the international flights
2 should be taken away? At the moment it is a one way
3 flight; Are you suggesting that should be a higher
4 proportion?

5 MS HANNETT: What I am referring to is what I am instructed
6 is called the Maldives syndrome. If one allocated CO2
7 to a particular country on the basis of outward flights
8 only, all the holiday flights going in and out of the
9 Maldives, for example, half of those would be allocated
10 to the people of the Maldives rather than the
11 nationality of the passengers coming in and out. So
12 I think it is perhaps a slightly complicated point and
13 not a point I want to put to Mr Pratt.

14 MR BOYLAND: I think I understand the question now. I don't
15 know if that helps Mr Pratt or not.

16 A. I think I understand the question now and that's my
17 understanding of why there is such controversy in the
18 international community about the allocation of flights
19 and why UK government quotes its submission on this
20 basis, and I believe all European countries do. But I
21 have identified in the table a domestic cruise as two
22 way, looking at column 1 at the top, and an
23 international cruise is one way. So if one wanted to go
24 down your calculation and do a two way, then you could
25 double the line that says international cruise one way.

1 That would give you the total of the emissions for a two
2 way flight.

3 I didn't present it in that way, because I thought
4 it was appropriate to put the data in the way that the
5 UK government normally does its reports to the
6 international community.

7 Q. That's right, Mr Pratt. Thank you for that. I am sorry
8 if I misled you in the way I put the question.

9 A. You didn't mislead me. I just didn't understand. Thank
10 you.

11 Q. That's perfectly fair enough, Mr Pratt.

12 Just a point of clarification. Looking at the note
13 below Table 5.3, it said there is a traffic model area
14 of 43 kms by 45 kms. That's about 30 miles by 30 miles,
15 isn't it? Are you satisfied that that captures all of
16 the Stansted-related road traffic?

17 A. There will be elements of traffic that's not captured in
18 that, and I believe I say in the appendix that deals
19 with this we have quite a difference between National
20 Trust figures and others, and I believe that's due to
21 the area considered, the background to using that area
22 was that was the area used for the modelling of the road
23 traffic in the main air quality study. So it was just
24 transferred into the CO2 calculations that are presented
25 in this table. There will be some vehicles coming from

1 outside that area into Stansted.

2 Q. It is correct, is it not, when one looks at the IPCC
3 report, and I hope I will not have to go to the
4 document, but if we do then we can do, that the climate
5 change impact of aviation emissions is between two and
6 three times more serious than the impact of CO2 alone?

7 A. This is the radiated forcing element.

8 Q. Indeed.

9 A. It is, and I refer to that in my evidence.

10 Q. Have you made any allowance for that in your
11 calculations?

12 A. No. As I say in my evidence, when I compared the
13 calculations that I made with those of the National
14 Trust and those of your clients to put them on
15 an equivalent basis, I removed the radiated forcing
16 element from the SSE figures, because helpfully you had
17 indicated exactly what figure you had used so we were
18 comparing tonnes CO2.

19 As I say in my evidence I changed million tonnes to
20 the kilotonnes so the numbers could be directly
21 compared. That's explained in the evidence.

22 If radiated forcing needs to be taken into account,
23 and there is a range of factors used in a number of
24 government documents, it could be applied equally to
25 each set of values. I thought that was easier than

1 trying to explain why some numbers included radiated
2 forcing and other numbers didn't.

3 Q. Would you accept if one applied radiated forcing to the
4 numbers, you would have a factor of somewhere between
5 two and four times depending on which document one
6 looked at?

7 A. 2.5 is the current favourite, but yes, it's in that
8 range.

9 Q. Finally, obviously Stern puts forward some estimated
10 costs for carbon dioxide, but that wasn't part of your
11 remit to apply the costs in Stern to the figures you
12 have --

13 A. Fortunately not.

14 Q. If you just bear with me a moment, Mr Pratt.

15 Just one final question going back to the radiated
16 forcing point. If one applies a factor of somewhere
17 between 2 and 4 to the figures you have produced,
18 instead of having 4,000 in your column at 35 MPPA, that
19 would increase to somewhere between 8 and 16. That is
20 correct, is it not?

21 A. Well, strictly speaking, as I understand the radiated
22 forcing, it is only applied to the cruise emissions, not
23 the totals, but you are right. As the majority of those
24 emissions are cruise, then this 3,400 in round figures,
25 plus possibly another 74 if you added those two together

1 and then you multiply them by your 2 to 4, then they
2 would go up significantly.

3 MS HANNETT: Thank you, Mr Pratt. Thank you, sir.

4 MR BOYLAND: Thank you.

5 Is there anyone else who is giving evidence at the
6 Inquiry who wishes to put any questions? Very well.

7 Mr Phillpot, how long for your re-examination?

8 MR PHILLPOT: Well, sir, it is hard to estimate, but if
9 I say we should finish comfortably this afternoon,
10 obviously allowing for questions from yourself, if you
11 are willing to sit a little bit later if necessary, it
12 wouldn't be very much later. I don't have hours of
13 questions.

14 MR BOYLAND: Good. I am glad to hear that. Certainly
15 I think if necessary I would rather sit a little later
16 this afternoon and then avoid the early start tomorrow,
17 which I think we could do in the light of the estimates
18 we have been given for the two witnesses tomorrow, and
19 also it has the advantage of avoiding splitting this
20 witness over two days.

21 MR PHILLPOT: Sir, I am keen to avoid that, if we can.

22 I think we can deal with it comfort believes this
23 afternoon.

24 MR BOYLAND: Let us get on and get it done. Thank you.

25

1 Re-examination by MR PHILLPOT

2 MR PHILLPOT: Mr Pratt, I am going to take the questions
3 that were put to you in the order they arose. We are
4 going to have to start with the questions that came from
5 UDC this morning. The first question is this. You were
6 asked what evidence you gave on the ecological
7 significance of being within or without the 30 microgram
8 contour. Do you remember that?

9 A. I think I do, yes.

10 Q. And in questions in respect of the environmental
11 statement you said -- I think I have got this right --
12 that you provided the contour to allow others to assess
13 it?

14 A. That's correct.

15 Q. In your evidence have you sought to address the
16 likelihood of ecological effects occurring within or
17 without the contour one way or the other?

18 A. No.

19 Q. Do you give any evidence one way or the other on where
20 the burden of proof lies in that respect?

21 A. No.

22 Q. Now so far as the basis of the 30 microgram per cubic
23 metre contour is concerned and what it does or does not
24 tell us, you were asked a question about that. I just
25 want to get your help on one document. It is CD/352.

1 Do you have that? These are the air quality guidelines
2 for Europe.

3 MR BOYLAND: Just bear with us, Mr Phillipot.

4 A. I am sorry. I don't have a copy of that to hand.

5 MR PHILLPOT: It is a short point. I will read out the
6 relevant passage. Just a couple of lines.

7 You will tell me whether or not you are familiar
8 with it, I think you are, because you refer to it in
9 your evidence. Let us see how we get on when the
10 inspectors have a copy.

11 MR BOYLAND: We have the extract we have been provided with.

12 I hope what you want is within that.

13 MR PHILLPOT: It is page 220 I want to refer to.

14 MR BOYLAND: No, we don't have that payable.

15 MR PHILLPOT: I will read it out, it is simply three lines.

16 MR BOYLAND: Can you provide the page afterwards?

17 MR PHILLPOT: Yes. Page 220 describes the definitions of
18 critical level and critical load, what they are and how
19 they were agreed. I just want to read the definition
20 for critical level:

21 "Critical level is the concentration of pollutants
22 in the atmosphere above which direct adverse effects on
23 receptors, such as plants, eco-systems or materials, may
24 occur according to present knowledge."

25 I just want to understand, does that reflect your

1 understanding of what critical level means?

2 A. That's correct.

3 MR PHILLPOT: Sir, I'll make sure that we provide you with
4 a copy of that page.

5 Now the second point I want to ask you about. You
6 were asked then about the extent to which the government
7 had assessed NOx levels on vegetation in the Air
8 Transport White Paper. Do you remember that?

9 A. I do.

10 Q. You were taken first to document CD/235 in that context.
11 Could you just find that again, please?

12 MR HILL: It might help if you have them this way round.
13 I took you first to the white paper and then to SERAS.

14 A. I seem to have lost it. I should have put all my
15 documents away.

16 MR BOYLAND: If it helps, this is the SERAS stage 2
17 appraisal findings report.

18 MR PHILLPOT: You have it?

19 A. I have two of them now. They were not mine. That's why
20 I ...

21 Q. I see. Looking at the front page of that document, when
22 was this document published?

23 A. The front page of the one I eventually used doesn't have
24 a front page on it.

25 Q. Mine says April 2002.

1 A. The other version says that, yes.

2 Q. I am grateful. Now the Air Transport White Paper, which
3 you were also taken to, December 2003. Do you see that?

4 A. Yes. I haven't actually found my bundle.

5 Q. Well, if you could just turn it up.

6 MR PHILLPOT: There is one there.

7 A. Yes, I have found that.

8 MR PHILLPOT: Now if we have --

9 MR BOYLAND: You have two of those as well, so you are doing
10 well.

11 MR PHILLPOT: You will have to make sure you return them all
12 to their rightful owners at the end.

13 If you tell me at any stage "that's just outside my
14 knowledge of the process" then I will know when to stop.

15 Are you aware between April 2002 and December 2003
16 of any responses received to the consultation by the
17 government? Are you aware there was a consultation
18 process undertaken for --

19 A. I am aware there was a consultation process but I am not
20 quite sure how well-informed I am --

21 Q. That's why I am being careful. I want to make sure I am
22 still within your area of knowledge.

23 Are you aware whether, as part of consultation, the
24 issue of NOx and the impact on Hatfield Forest was
25 raised by people who responded to consultation, and if

1 you don't know, just say so.

2 A. As I say, I do have a vague recollection of the National
3 Trust one but I am not sure that was specifically in
4 relation to the study. I should say that.

5 Q. Anyway, we have come to the point where the government
6 published the Air Transport White Paper in December
7 2003. If you go within that to the page you were taken
8 to before, page 115, you remember being taken to
9 a passage that specifically deals with NOx, the limited
10 life of vegetation and its relationship to Stansted?

11 A. Yes, I see it.

12 Q. Now obviously you cannot put yourself in the mind of
13 government, but reading the document on its face, did
14 the government consider the question of NOx
15 concentrations, vegetation and the effect on Stansted
16 before formulating its policy?

17 A. I would have thought so.

18 Q. Are you in a position so far as your evidence is
19 concerned to add to our understanding on that what the
20 government considered when?

21 A. No, only in so much of that statement would be
22 consistent with the concept of an exclusion zone.
23 I hesitate to go down that route.

24 Q. I am only taking you as far as you reasonably can go.
25 You are an air policy witness, not a witness leading

1 with the process leading to the Air Transport White
2 Paper. Anyway there we are.

3 You were then asked about questions on changes that
4 had occurred in the assessment of air quality since the
5 15 plus assessment. Do you remember those questions?

6 A. I do.

7 Q. When roughly was the 15 plus assessment carried out?

8 A. 2001.

9 Q. 2001. So although it related to the 2003 permission,
10 the assessment itself was a couple of years earlier than
11 that?

12 A. I believe so. I probably have the environmental
13 statement somewhere.

14 Q. Don't worry. We can look that up, if necessary, in due
15 course. I just wanted a broad indication.

16 Now if one goes in CD/6 next, please, because it was
17 put to you that there were changes. I just want to
18 identify what those changes were.

19 MR BOYLAND: Can you just identify the document? That's ES
20 volume 3, is that right?

21 MR PHILLPOT: Indeed, sir. Now if you can go in that
22 document, please, to paragraphs 10.2.7 on page 39 and
23 10.2.8, and I will read those out to you:

24 "Since the publication of the 15 plus application
25 assessment, there have been a number of improvements to

1 the emission calculation methodology as described in the
2 model test report summarised in section 5. To highlight
3 the magnitude of this change, a comparison of the
4 emissions from the 15 plus application assessment in
5 table 21 is set out in table 22 for NOx and PM10."

6 10.2.8:

7 "This comparison shows that NOx emissions estimates
8 have fallen by approximately a factor of 2, whereas
9 those of PM10 have increased by a similar amount. The
10 key reasons for the reduction in NOx submissions stem
11 from better information on times in mode, engine thrust
12 settings and use of reverse thrust. Emissions from
13 airside vehicles have also fallen significantly due to
14 a better understanding on the use of airside diesel."

15 Now just pausing there, so far as those changes are
16 concerned, do you understand those elements of the
17 assessment to be in issue, ie disputed by Bureau Veritas
18 and Mr Moorcroft, those changes?

19 A. I don't believe so, no.

20 Q. I see. Just holding on to that thought for a moment,
21 questions were put to you about the 15 plus assessment
22 having been out by a factor of 4. I just want to
23 clarify. What was it that was out by a factor of 4?
24 Was it the overall assessment or an element of it?

25 A. No, it was the contribution from aircraft take off role

1 as a component of the overall modelling methodology,
2 which is that one component was a factor of 4.

3 Q. Now is that factor likely to be out by a factor of 4
4 now?

5 A. No.

6 Q. Why is that in broad terms?

7 A. Because the evolution of the model application has
8 allowed better understanding of the distribution of that
9 initial component of air coming out of the engine. So
10 it is represented in a slightly better way and there is
11 some other sort of detailed changes in the modelling
12 process that has removed that large over-estimate.

13 Q. Help me with this on a more general level. There were
14 elements of the 15 plus assessment which, as established
15 between you in cross-examination, turned out in due
16 course to have been too conservative and therefore the
17 overall assessment was pessimistic. Is the level of
18 uncertainty associated with the assessment exactly the
19 same each time one does the assessments? In other
20 words, is the level of uncertainty associated with the
21 15 plus assessment the same level of uncertainty
22 associated with this assessment?

23 A. No, because we are improving the data that's going into
24 the model as better information becomes available and
25 those are the illustrations of the sort of data that has

1 been improved.

2 Q. I see. Thank you for that. You were then asked why you

3 hadn't produced a 2005 case. You gave an explanation of

4 why you can't use the 2005 set of monitoring to test the

5 model?

6 A. That's correct.

7 Q. You were then asked whether you had done an assessment

8 for 2006 or 2007. The reasons you gave for why you

9 couldn't use the 2005 assessment testing the model, do

10 they apply to 2006/2007 or not?

11 A. Yes, you would have to do everything again.

12 Q. We then had some questions about page 25 of the air

13 quality volume of the ES. Just turn to that again.

14 This was on table 10, the continuous monitoring at

15 Stansted Airport. The question was put to you on

16 whether that was the only continuous monitoring that the

17 airport has done, and you said:

18 "That the airport has done, yes."

19 I just want to ask you: is there any other

20 continuous monitoring in the area?

21 A. Yes, there is other continuous monitoring on page 23,

22 for example, there is some continuous monitoring from

23 East Herts. If you go back a few more pages to 20,

24 there is some data from Takeley, and Takeley Four Ashes.

25 Q. We need not go through all the explanations as to how

1 that is used, but the ES tells us about that.

2 Sticking to this theme of the 15 plus assessment and
3 the extent to which it was out, and this question of the
4 emissions factor being out by a factor of 4, in which
5 direction was it out? Was it underestimating or
6 overestimating the emissions?

7 A. Overestimating concentrations.

8 Q. Now with that in mind, can we look at what you say in
9 BAA/4/C? That's your tables, figures and appendices.
10 Page 20, please. This is the section dealing with
11 modelling issues. Your conclusion on page 20,
12 paragraph 2.40, you say:

13 "What is important here is to understand whether
14 there is any reason to believe the model as described in
15 the ES and its associated reports will systematically
16 underestimate future concentration either with or
17 without the proposed development."

18 So far as the 15 plus assessment is concerned, does
19 that provide evidence or reason to believe that the
20 model will systematically underestimate future
21 concentrations?

22 A. No.

23 Q. You were then asked a similar question, if you remember,
24 in respect of table R1 in BAA/4/F, and you can turn up
25 either the amended version or the earlier version,

1 because the figure -- perhaps turn up the amended
2 version. The figure given for the measured
3 concentration in 2004 at Shell House is 22.6, and it was
4 put to us that that is out by 27%. Do you remember
5 that?

6 A. I do remember that, yes.

7 Q. Which way is it out?

8 A. The model is higher than the measured concentration by
9 that amount.

10 Q. So coming back -- you don't have to turn it up again --
11 to the question that you pose in BAA/4/C, does that give
12 any reason to believe the model will systematically
13 underestimate future concentrations?

14 A. No.

15 Q. Then we had questions on the significance criteria in
16 the ES. Do you remember that?

17 A. I do.

18 Q. And you explained in response to questions from my
19 learned friend that those significance criteria were
20 based on health levels, statutory-based health levels?

21 A. That's my memory of the Clean Air Society document,
22 which is directed at giving advice primarily on air
23 quality management areas and the designation of them, on
24 health-based objectives.

25 Q. Now assume for the purposes of this question that the

1 government is right in its understanding that the limit
2 value for vegetation doesn't apply here. So assume that
3 that is right. There is no statutory obligation so far
4 as vegetation is concerned at this location. If that's
5 right, can you apply the same approach to the
6 significance criteria to that limit value?

7 A. I wouldn't apply it, no.

8 Q. Just a question of clarification. You were then asked
9 about the percentage contribution from the airport in
10 Hatfield Forest, that is the percentage of the NOx
11 concentration which was attributable to the airport, and
12 it was pointed out that at Thremhall Farm it is a third.
13 Now we don't have to look up the map again. You
14 remember Thremhall Farm is nestling just underneath the
15 A120. I think that's right. What happens as one moves
16 away from Thremhall Farm into the forest itself?

17 A. That contribution will reduce.

18 Q. Yes. Then we come to the questions that were put to you
19 after lunch. We need to start with CD/24. Remember
20 that? That was, if my recollection is correct, the
21 scoping opinion. I will set out my understanding of
22 what was asked of you in the context in which it was
23 put, just in case I have misunderstood it. My
24 understanding was this was in relation to a point you
25 had raised earlier that no request had been made for

1 a current case from UDC. That is an assessment that --

2 A. Yes, that's what I think I said.

3 Q. And a current case in that context is what?

4 A. It would be 2004-ish.

5 Q. But what would be doing? What would you be producing

6 for whatever that period is?

7 A. It would be a concentration map of some sort.

8 Q. Right. Now let us go to in that context CD/24, page 7.

9 You remember, looking at the right-hand column, what the

10 study was to include. Got that?

11 A. I have, yes.

12 Q. First entry: the effect that current emission levels are

13 having on Hatfield Forest.

14 Considering the effect of current emission levels,

15 is that the same as producing a current case?

16 A. I did interpret it that way when the question was asked,

17 yes.

18 Q. I know it is the way you interpreted it when the

19 question was asked, but you are dealing with

20 concentrations. You have made clear in answer to my

21 questions earlier you are not dealing with effects of

22 concentrations?

23 A. That is true, yes.

24 Q. If you were asked to produce a current case, would you

25 be considering the effect that emission levels, whatever

1 time, were having on Hatfield Forest?

2 A. No, I would just be producing a concentration map.

3 Q. There we are.

4 Then questions were put to you about the use of
5 experience at other airports with the ADMS model in
6 order to go towards deciding whether or not it would
7 work properly here. Remember those questions? There
8 is, of course, evidence that you have put it on this in
9 BAA 4/C. If we could just turn to that document to
10 page 15, where the model verification starts, and over
11 onto page 16, bottom of that page, paragraph 2.23, you
12 say:

13 "Although the airport air quality modelling
14 methodology used for the G1 assessment has been
15 continuously refined over a number of years, the
16 approach is similar to that used in a number of previous
17 air quality assessments at Heathrow, Gatwick and
18 Stansted airports. So model measurement comparisons
19 carried out for those studies provide additional
20 information on the performance of the overall model."

21 Then you go on to explain the conclusions that
22 emerge from that.

23 MR BOYLAND: Sorry to interrupt. Can you just give us the
24 reference again, please?

25 MR PHILLPOT: That is BAA/4/C. It starts at the bottom of

1 page 16, paragraph 2.23.

2 MR BOYLAND: Thank you.

3 MR PHILLPOT: I just want to have some idea of the extent to
4 which one can derive assistance from experience of using
5 the model at other airports, and the comparisons --

6 MR HILL: Sir, can I just be clear that was not the purpose
7 of my question, as I think my learned friend knows. My
8 question was about whether there had been verification
9 of the model on other occasions at Stansted. The answer
10 was no. I fully accept, of course, the approach to the
11 model is similar. That's not the point.

12 MR PHILLPOT: Well, sir, I had understood the point to be
13 how useful is his experience of other airports in
14 understanding how the model would work as expected here.

15 MR BOYLAND: My recollection is that it was narrower than
16 that, as Mr Hill suggests.

17 MR PHILLPOT: Be that as it may, the question comes as to
18 how it has been used here, and the comparison between
19 those three airports. So far as the elements that go to
20 model performance, in other words, whether it works as
21 expected, is the meteorology significantly different
22 between those three airports?

23 A. There will be detailed differences but I don't think
24 they would be significant.

25 Q. What about questions of terrain, whether there are

1 hills, valleys, that sort of thing that might affect
2 concentrations?

3 A. Certainly the airports are all generally flat.

4 Q. What about the general use of those airports? Is there
5 anything that would significantly affect the validity of
6 the model, or whether the model will work between one
7 airport and the other?

8 A. There's no reason why the model wouldn't work in those
9 locations, as I have indicated on ADMS airport.

10 Q. Then questions were put to you about the number of
11 monitoring stations at those other airports. You have
12 explained about the air quality management area. I just
13 want to understand this. If you tell me you don't know
14 the answer, that's fine. At Gatwick do you know how
15 many of the monitoring stations that were there were set
16 up for the purposes of model verification?

17 A. I think I say I don't know the answer to that.

18 Q. Fine. That's probably the safest way to go, if you
19 don't know the answer to tell me that you don't.

20 Then questions were put to you about the absence of
21 further work after CD/145, which was the response by
22 Bureau Veritas, the regulation 19 response, to provide
23 more data. You said that to verify the model, unless
24 the whole work is repeated, it can't be done
25 retrospectively if the test is 2003/2004. Then you

1 referred to the -- you said you could not do that, test
2 the model on the basis of 2006/2007 data. I just want
3 to understand why that is, in simple terms, why you
4 can't take 2007 data and then test the model against it?

5 A. I think there would be two main reasons. One, the
6 meteorology would be different and the emissions from
7 Stansted area would be different and, therefore, I just
8 don't think it would be a valid comparison.

9 Q. So far as running the whole exercise again, in other
10 words getting all that information for 2006 or 2007 and
11 running the model again, is that an exercise you
12 consider to be justified in these circumstances?

13 A. No.

14 Q. Then there were some questions put to you about your
15 BAA/4/F and in particular table R2. Do you remember
16 that? I am not going to put to you the questions that
17 weren't asked. I can make submissions about that.
18 I just want to understand. So far as table R2 is
19 concerned, is this a comprehensive set of the concerns
20 you have about the data?

21 A. No. There were other dates where there appear to be
22 unusual peaks.

23 Q. I see. You said in relation to I think it was figure --
24 this is in UDC/7/D. If you could just turn that up:
25 figure 2, UDC/7/D. You said you had not seen the full

1 set of meteorological data. Why did you want to see the
2 full set of meteorological data?

3 A. I think I had said that I had seen the data that
4 corresponded to what was in this figure, but to
5 understand whether these examples which were on
6 easterlies is a common feature, then you would need to
7 look at the full set of met data at the Takeley site and
8 then see whether there were other anomalies that
9 occurred when it was on easterlies.

10 Q. I see. Do you understand that that's an exercise that
11 Mr Moorcroft has undertaken?

12 A. I am not aware that he has done a full analysis, no.

13 Q. Just looking at figure 2, we see Shell House reaching
14 the same level as High House at about 6 o'clock in the
15 morning. Is that something you would expect to see?

16 A. It's difficult to say yes or no to that because of
17 the -- sorry -- I'll get my teeth back in -- the
18 meteorology wind speed is very low, so directionality is
19 somewhat uncertain, but I would have thought, given
20 distance away that Shell House is, that the
21 concentration would have been lower, but that's probably
22 as far as I can say.

23 Q. Turning over the page in UDC/7/D, 27th to 30th April,
24 does the data that has been provided there explain the
25 pattern of peaks at Shell House amongst other sites that

1 you have identified for those dates?

2 A. Not as it's presented, no.

3 Q. Does any of the information in UDC/7/D explain the

4 diurnal pattern you discussed?

5 A. No.

6 Q. You were then taken to task over how you had

7 characterised the exercise that Mr Moorcroft had

8 undertaken, and you said it is effectively a forecast or

9 model into the future. You said it is simply a reality

10 check or words to that effect. If it is right that it

11 should be considered only as a reality check, is it

12 appropriate to use that to derive a prediction for 2014?

13 A. I don't think so.

14 Q. Why is that, just in broad terms?

15 A. I just don't think it can be done as simply as that. I

16 had trouble explaining this last time. I am just trying

17 to think of ...

18 Q. If you don't want to add anything to what you have said

19 earlier, that's fine. If there is anything different

20 you want to say about why it is, if there is only

21 a reality check, you shouldn't use it to derive

22 a prediction for 2014, if there is anything else you

23 want to add to that, then please do. If not, please say

24 so.

25 A. I think the only thing I would add, I am just very

1 nervous applying one piece of data and saying that it's
2 a systematic underestimate and therefore you have to
3 apply it across the whole region. I just don't think
4 that's appropriate.

5 Q. That's the next question I was going to come to. You
6 were then asked: if it is 6 adrift, if you remember, you
7 said if that's the case at Shell House, then you would
8 have to make corresponding changes further to the north
9 as well. Do you remember that? You said if it was
10 systematically adrift. I just want to understand what
11 you mean by systematically adrift in that context?

12 A. That means, as I understand it, 6 would have to be added
13 to the contours across the whole study area. So
14 everything would go up by 6.

15 Q. Do we have evidence that would justify a finding that it
16 is systematically adrift?

17 A. No.

18 Q. Then it was said to you that Mr Moorcroft is not using
19 this to shift the contours. Can I just get your help on
20 this? Would you take up UDC/7/C, please? It is
21 Mr Moorcroft's rebuttal proof. If you can go to page 8
22 of that document, please, paragraph 5.7, where
23 Mr Moorcroft says:

24 "Regardless of the explanation, if 9 micrograms were
25 added to the 2014 predicted concentrations, the

1 30 microgram contour would become 39 and the 20 would
2 become 29. This analysis suggests that exceedance would
3 extend some distance into Hatfield Forest."

4 Do you understand there Mr Moorcroft to be
5 advocating a change in the contour?

6 A. Sorry. I didn't hear that last bit.

7 Q. Do you understand Mr Moorcroft to be advocating changing
8 the contour on the basis of what he said?

9 A. Yes, although the addition is now 5 or 6. That's what I
10 was trying to get across earlier. He is adding it to
11 shift the contour into the forest.

12 Q. Yes. Now we had some further questions about the
13 comparison between the 2004 data and the 2007 data and
14 the usefulness of those. I just want to ask you
15 a couple of questions on that, please. The 2004 data
16 I think you remember we were predicting about plus 6
17 over that?

18 A. Yes.

19 Q. And 2007 according to Mr Moorcroft, if he is right, we
20 are about -6 below it?

21 A. Yes.

22 Q. Even if Mr Moorcroft is right, what does that tell you
23 about the overall position?

24 A. That there are places where it would be underpredicted,
25 which is within the uncertainties of the model as we

1 have identified.

2 Q. Again, if he is right, what difference would that make

3 to the relative difference between 25 and 35 MPPA?

4 A. It would make no difference.

5 Q. Then questions were put to you about sensitivity, and

6 you were taken to CD/22, the regulation 19 response, and

7 to figure 14 at the back, which shows the 40 MPPA

8 contour: the first question I want to ask you about this

9 is if Mr Moorcroft is right about the current level,

10 that it is 30 micrograms or thereabouts down by

11 Shell House, would 40 MPPA, the position in 2014 at

12 40 MPPA, be better or worse than at present?

13 A. It would be better than it is at the present.

14 Q. It was then said to you that the impact of 40 MPPA -- my

15 learned friend was not aware of whether that had been

16 dealt with in terms of ecology in the ES. In the same

17 document, please, could you go to page 32? Looking

18 through that, we see at the top of the page

19 "Implications of NOx on vegetation"?

20 A. That's correct.

21 Q. You see the discussion that takes place there. 2.6.27,

22 it explains what was in the ES. Contours weren't

23 provided for the fleet mix in 40 MPPA hybrid sensitivity

24 test. It explains those concentrations are provided in

25 figure 14. It then compares the areas within the

1 contours and it identifies where they are most
2 noticeable. It then talks about the contour, where it
3 encroaches and where it doesn't encroach. It then talks
4 about the consultation document on the air quality
5 strategy, which we remind ourselves that was the point
6 it was being asked to address, and then discusses the
7 sensitivity test in the context of that at 2.6.30.

8 Bearing in mind that this is part of the
9 environmental statement, environmental information, is
10 the impact of the 40 sensitivity test in the context of
11 vegetation, is it considered?

12 A. It is considered, yes.

13 Q. Then we had some very brief questions on nitrogen
14 deposition. It was said that nitrogen deposition is
15 dealt with in the rebuttals. You can turn up
16 Mr Moorcroft's rebuttal if you like, but do you recall
17 Mr Moorcroft seeking to rebut your evidence on nitrogen
18 deposition in his rebuttal evidence?

19 A. No.

20 Q. Right. That's all I had on UDC's cross-examination.

21 Then some very brief questions on SSE. There were
22 questions initially about the choice of model and that
23 was put in the context of the work that had been
24 undertaken at Heathrow. In that context, please, two
25 documents I want to prefer you to. One is CD/144. If

1 you could take that out. The other one is CD/536.

2 I wonder if you could take that out as well?

3 A. Sorry, CD?

4 Q. CD/144, which is a Bureau Veritas review?

5 A. I have that one.

6 Q. CD/136 is Mr Underwood's letter of 22nd June. I would
7 like to start with CD/144, which was very delicately
8 swept over in cross-examination. Page 16. You see at
9 the bottom of page 16 question 6. This was a question
10 posed to the advisers to the District Council:

11 "To what extent has recent work as part of the
12 sustainable Heathrow project to refine air quality
13 modelling been reflected in the approach at Stansted?

14 "Answer: In general terms most of the critical
15 issues identified by the PSDH project have been
16 incorporated into the approach used at Stansted.
17 Importantly consideration been given to the near field
18 dispersion from jet engines, realistic take off thrust
19 settings have been applied, and the approach used to
20 estimate NOx/NO2 transformation allows for potential
21 impact of increasing primary NO2 emissions and ozone
22 background to be accounted for."

23 What's your view on that? Do you agree or disagree
24 with that assessment?

25 A. I agree with that.

1 Q. And then in document CD/536, if we remind ourselves,
2 page 2 of that letter.

3 MR BOYLAND: We don't seem to have that one, Mr Phillipot.

4 MR PHILLPOT: I will just pause while you find that, sir.

5 MR BOYLAND: Have we referred to this previously this
6 afternoon?

7 MR PHILLPOT: It was referred to in cross-examination
8 I think. It was certainly on the SSE document list.

9 MS HANNETT: I think it was referred to in my documentation
10 list but we didn't refer to it in cross-examination.

11 MR BOYLAND: The documents we have steps to stop at 535.

12 MR PHILLPOT: The 536 letter is the one I need the witness
13 to have in front of him, sir. The questions were put
14 about the letter that generated the response. Mr Pratt
15 said, "There is a letter in response to that". I am
16 therefore entitled to say what it does say. It goes to
17 this specific issue.

18 MR BOYLAND: That's fine. We don't have it. Do you have
19 it, Mr Pratt?

20 A. I have it, sir.

21 MR PHILLPOT: Let me see if I have a spare copy.
22 Fortunately I have a spare copy, sir. I have them
23 coming out of my ears. I will pass one on to you. That
24 was one provided to me this morning.

25 MR BOYLAND: Thank you very much.

1 MR PHILLPOT: The second page -- we notice on the first
2 page, the bottom of the first paragraph, we see that the
3 author of the letter was responsible for the detailed
4 technical decisions made in the AEA work. He was also
5 a member of all three expert panels convened by PSDH
6 including the modelling panel that oversaw the model
7 referred to by Dr Carruthers. Over the page, or page 2,
8 he identifies what he considers the four key questions
9 raised by Dr Carruthers' letter. The third of those
10 questions is:

11 "Can the model monitoring comparisons at Heathrow be
12 used to make inferences about the performance of the AEA
13 modelling at Stansted?"

14 Issue 2, which is the one I meant to ask about:

15 "Would the available of ADMS airport invalidate the
16 use of the AEA model approach in airport air quality
17 assessments?"

18 That was the context of the questions put to you:
19 what about ADMS airport? I want to look to see what was
20 said about that on page 3, the use of the AEA modelling
21 approach. Second paragraph under point 2:

22 "However, Dr Carruthers is correct to point out the
23 simple statistics can mark a significant difference at
24 a more detailed level, and it is indeed true that when
25 the data were analysed to extract the aircraft

1 contribution, albeit with some uncertainty, the AEA
2 modelling showed significant overestimation, whereas the
3 CERC modelling did not. From a purely modelling
4 perspective, this was the principal basis for the PSDH
5 for an ADMS airport over the AEA approach, although
6 there were additional reasons principally derived from
7 the AEA modelling strategy which forgoes the ability to
8 output concentrations on an hourly basis in order to
9 increase computational efficiency when calculating
10 annual means."

11 Just pausing there, when you referred in your
12 answers to cross-examination about overestimation, was
13 that what you had in mind?

14 A. That was one of the two points that I had in mind, yes.

15 Q. And the other point was that I think you mentioned the
16 turbulence?

17 A. Yes, this was the vehicle-induced turbulence on major
18 routes.

19 Q. No need to go through that. That is there to be read.
20 Now is ADMS airport commercially available now?

21 A. My understanding is it is not yet available though there
22 is an expectation it might be released in the autumn of
23 this year.

24 Q. If BAA wanted to use ADMS airport, would be able to do
25 that for free or would it have to pay something?

1 A. It would have to be paid for one way or the other, yes.

2 Q. Who would be paid?

3 A. CRC would either be paid for BAA to use the model or
4 they would be paid to use the model themselves.

5 Q. So Dr Carruthers' organisation would be paid for that?

6 A. Officially, yes.

7 Q. A small sum or large sum?

8 A. I suppose it's all relative. I would think it would be
9 quite large.

10 Q. There we are: then there were questions put to you by
11 SSE on the CD/144. We just need to go back to that.
12 Page 16 again but a different question this time. This
13 was about fleet mix. Page 16, question 5. We remind
14 ourselves of the question:

15 "The local branch of Friends of the Earth suggest
16 that predictions for NOx and NO2 are very optimistic and
17 it wouldn't take many changes to the aircraft fleet mix
18 of the 30 microgram contour to include parts of Hatfield
19 Forest suggesting that modern aircraft emit more NOx."

20 Now you were taken to the second paragraph, but
21 I just want to ask you about this. The first
22 paragraph begins:

23 "There is no evidence to suggest that the
24 predictions are optimistic although obviously dependent
25 on a number of critical assumptions."

1 What is the significance of that in your view?

2 A. That the assumptions or the modelling is sort of tending
3 to be pessimistic, ie forecasting concentrations tend to
4 be higher.

5 Q. Now you were asked a question about one of the factors
6 that the PSDH had thrown up. You said you had to check
7 that. So do you undertake to provide a short note to
8 the Inquiry in due course about that?

9 A. Okay.

10 Q. Finally, there were some questions about odours. I can
11 deal with those hopefully pretty briefly. We need to go
12 back to CD/144, which hopefully is pretty close to hand,
13 and to page 6. Now you have explained to the Inquiry
14 why you consider that the mixing up of the data from the
15 different airports to derive a statistical relationship
16 is not a valid exercise. You have explained that but
17 just look at what is said underneath figure 1:

18 "The graph implies that the proposed increase to
19 ADMS at Stansted could give rise to one or two
20 additional complaints in each year."

21 I just want your help. Assuming that it was
22 an appropriate exercise to undertake and you could
23 derive that conclusion, would that be a significant
24 impact, in your view?

25 A. No.

1 Q. I am grateful. Then CD/22, on the same issues. That's
2 the regulation 19 response. We need to go within that
3 document to the odour study report at the end. The data
4 analysis. Again this was something that wasn't dwelt
5 upon. I will wait until you have that.

6 A. Sorry.

7 Q. The first paragraph under "Data Analysis" tells us that:

8 "Initially the collection of data was slow with few
9 reports of odour from local neighbours. Historically
10 there were few reports from the public about odour
11 issues with no records of odour occurrences maintained.
12 The response following the initial notification to the
13 local parish councils were minimal, with one report and
14 two telephone calls. There was an increase in response
15 following the mail shot, which was effectively chart 3.
16 This shows how the response rate increased following the
17 mail shot and then again during the public consultation
18 exercises. Since these events, the number of odour
19 occurrences reported has again dropped to minimal levels
20 with no reports within the last six months. This
21 suggests that the reporting of odour issues were
22 triggered by the study itself. This concluded that the
23 reporting of odour occurrences is not a significant
24 priority for local neighbours unless prompted to do so."

25 In that context, is a response prompted by the

1 questionnaire to this study equivalent to a complaint in
2 your view?

3 A. I don't think so.

4 Q. From the data that was available at the time of the ES,
5 taking this in stages, is there evidence in your view,
6 reliable evidence, to show a trend between odour
7 complaints and number of air traffic movements?

8 A. No.

9 Q. Since the ES has been produced, has any such reliable
10 evidence been produced that would demonstrate that
11 trend?

12 A. I don't think so.

13 Q. Questions about oily droplets, and I will draw
14 a discreet veil over your answers to that. I don't need
15 to go into caterpillar emissions.

16 Finally, please, on the issues of CO2 emissions and
17 your BAA/4/C, table 5.4; 5.4 follows on from the table
18 5.3 you were taken to. If you just remind yourself in
19 table 5.3 there were questions put to you about the way
20 that international flights were treated. Do you
21 remember that?

22 A. Yes.

23 Q. If you were to take account of international flights
24 both ways rather than just one way, going over to table
25 5.4, would the picture that is shown by table 5.4 change

1 materially, that is the percentage of Stansted's
2 emissions, total Stansted's emissions as a percentage of
3 transport and as a percentage of total UK emissions.

4 Would that overall picture change significantly?

5 A. No, because you would be adding them in in several
6 places, so the percentages would go up a little.

7 MR PHILLPOT: Mr Pratt, those are the only questions I have.

8 Thank you, sir.

9 MR BOYLAND: Thank you very much.

10 Questions from MR PHILLIMORE

11 MR PHILLIMORE: Mr Pratt, can I take you to your original
12 proof, please, BAA/4/A? First of all, paragraph 4.1.16
13 on page 9. You refer there to a figure 4.1. It is
14 about halfway down that section of the paragraph. You
15 say:

16 "The deposition rates shown in figure 4.1 assume the
17 vegetation type is deciduous forest across the UK.
18 Clearly in areas where there is no deciduous forest the
19 deposition rates would be different and probably lower
20 than shown."

21 Can I just ask you in relation to the use of the
22 term "probably" there?

23 A. I probably should have said it would be lower, because
24 it is a vegetation classification that derives the
25 deposition rate.

1 Q. What was the actual mechanism for that being lower in
2 areas of that type of vegetation?

3 A. It is the way in which the vegetation captures the NOx.
4 Trees are much better in the sense of trapping than,
5 say, grass. So if you did the calculations for grass,
6 then you would get very much smaller deposition rates.
7 It affects the deposition velocity part of the
8 calculation.

9 Q. Thank you for that clarification. On the page opposite,
10 page 10, paragraph 4.1.20, you refer then to table 4.1
11 and contributions from airport emissions. You say:

12 "It would not be safe to assume that future
13 emissions from the G1 development are included in the
14 2014 deposition rates."

15 When you say it would not be safe to assume, can you
16 just clarify that point for me. I couldn't understand
17 why you have some hesitation in making that statement?

18 A. Right. The sort of national statistics on emissions are
19 effectively based on sort of national growth rates and
20 they don't necessarily include a specific development.
21 So the development at Stansted might mean there is more
22 growth there than the national figure might have
23 predicted. So in my normal conservative way I have
24 said, well, it would be unsafe to assume it has got
25 Stansted in in that way. So I have added it in. So

1 potentially I have double counted a little bit but
2 I decided that was the safer route to go. Hence I used
3 that sort of wording.

4 Q. Thank you. Moving on to page 12, paragraph 4.1.29, you
5 deal with the dry deposition rates from all sources of
6 nitrogen oxides in the modelling work. You refer to the
7 fraction of deposition that could be attributed to the
8 airport. This is 1.31. Then you deal with the
9 difference between 25 and 35 MPPA.

10 Then, moving on to paragraph 1.31, you refer to that
11 change with G1 as being 0.2 kilograms at the beginning
12 of that paragraph there.

13 A. Yes.

14 Q. Then you compare that with the fractional increase. You
15 describe that in terms of what it represents as
16 a fractional increase in the total nitrogen deposition,
17 and you refer to table 4.3.

18 As I understand it, that table doesn't actually give
19 the total figure you are making the comparison with. It
20 gives the percentages in the final column. That's on
21 page 4 of the appendices. Is that correct? I can't
22 actually -- I shouldn't look at that table to try to
23 find what the total figure is, what the source of that
24 figure is. Do I need to look somewhere else to find
25 that?

1 A. Rather than telling you incorrectly, can I double check
2 tonight and give that to you?

3 Q. If you could. Are you going to be here tomorrow?

4 A. Yes, I shall be here tomorrow morning for some of the
5 time. I will certainly make sure you have it tomorrow
6 morning.

7 Q. Just leading on from that, the other point I wanted to
8 raise was just to explain the mechanism in terms of the
9 relationship between deposition from or dry deposition
10 from nitrogen oxides and the total deposition, just to
11 know what the relative proportions were, just to explain
12 why the increase from G1 in total nitrogen deposition is
13 such a small percentage compared with the change in dry
14 deposition. Could you just briefly set that out for me,
15 please, just to make sure I've understood that point?

16 A. Yes. Do you want me to set that out in a note as well?

17 Q. If you could explain that briefly now and then follow it
18 up with the other figure that you've got.

19 A. I think the basic reason that the difference is small is
20 the actual difference in NO_x concentration between the
21 two cases is also small. The deposition is derived from
22 the NO_x, which is converted to NO₂ and then goes through
23 the deposition calculation that I have put in at 4.1 to
24 8. So because these increments are small, it works
25 through the calculation to give these relatively small

1 amounts of 0.2 and 0.3.

2 Q. But in terms of the dry deposition from all sources of
3 nitrogen oxide are you comparing -- it is a change of
4 0.2. No. 0.3 I think. I am looking in
5 paragraph 4.1.29, where there is a total of 3.6, which
6 is a lot higher percentage than what you have got in
7 your 4.1.31. I just want to understand is that because
8 what you deal with in paragraph 4.1.29 is only a very
9 small element in itself or the total deposition? That's
10 why I asked the original question what that total
11 deposition figure is.

12 A. Right. The 3.6 is the total deposition.

13 Q. I understood that to be from dry deposition.

14 A. Well, we are talking about dry deposition of NO₂
15 throughout this calculation.

16 Q. All right. So can you just explain then what figure you
17 are comparing?

18 A. We are saying the 3.6 is the total deposition. I am
19 looking at column 3 on table 4.2.

20 Q. I understand that.

21 A. Sorry. 4.3. 1.1 kilograms of that is attributable to
22 the airport.

23 Q. Right, which you say is --

24 A. Sorry?

25 Q. And that's where the 0.31 comes from as a percentage?

1 A. That's on the 25 million case. On the 35 million case
2 you have got 3.8 and 1.3 as the deposition. So the
3 difference is the 0.2 that we see in 4.1.31. Then the
4 equivalent figure, again looking at 4.3, for East End
5 Wood is the 0.3 figure. Have I explained the right
6 point?

7 Q. Could you just bear with me one moment, please? Looking
8 at 4.1.29, towards the end there you say increases --
9 you have got the figure 1.1. That goes up to 1.3, which
10 is a difference of 0.2. Comparing the 0.2 with 3.6.

11 MR PHILLPOT: Sir, would it help to look at table 4.1 to get
12 the total deposition rate for the year?

13 MR PHILLIMORE: That was the original question I had. Can
14 I just finish this point? If you compare 0.2 with 3.6,
15 the degree of change there with the degree you set out
16 in 4.1.31, where you say the increment is an increase of
17 0.8%, for Hatfield it is 0.8%, I am trying to tally
18 those two --

19 A. I hope that 0.2 over 3.6 would have been 0.8% and the
20 0.3 over 3.8 would be the 1.2. I will double check
21 them.

22 Q. Would you do that, please?

23 A. Sorry about that. It is just that my --

24 Q. If you could just confirm those figures for me. The
25 final question which I put to Mr Moorcroft when he was

1 giving evidence was in relation to the 5 kilometre what
2 has been described as exclusion zone and whether he was
3 able to offer any explanations as to why it was
4 a 5 kilometre distance. Are you able to help me on
5 that, please?

6 A. I am afraid I have never seen a document that explains
7 why it is 5. I have traced back through the various
8 directives from which this and their consultation in the
9 UK and the consultation documents, but the figures have
10 always been mirrored straight from the original
11 directive, which I think is the 1999 version of it, but
12 I've never seen any explanation of why it's 5
13 kilometres. So I can't help you any more than
14 Mr Moorcroft could.

15 MR PHILLIMORE: Thank you very much, Mr Pratt.

16 MR BOYLAND: I am sure you will be pleased to hear I have no
17 further questions. Thank you very much, Mr Pratt.

18 Right. It is just after 5.10. Clearly we will
19 adjourn now until tomorrow. The estimates that I have
20 for times tomorrow are for Mr Squire 30 minutes
21 examination-in-chief, SSE 30 minutes cross-examination.
22 I have no estimation for UDC. Does that mean no
23 questioning at all?

24 MR HILL: That's right.

25 MR STINCHCOMBE: Sir, can I forewarn you I think my estimate

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