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1 June 28, 2010
 2 COMMISSIONER:
 3 Q. Good morning, ladies and gentlemen. Good
 4 morning, Ms. Turner.
 5 MS. TURNER:
 6 Q. Good morning.
 7 COMMISSIONER:
 8 Q. Just a word or two, not directed so much at
 9 the people who are within the room because
 10 they know perfectly well the procedure, but a
 11 word for the workers who work offshore, their
 12 families, and the public generally because the
 13 public certainly of Newfoundland and Labrador
 14 have shown a keen interest over the months in
 15 the work of this inquiry, so what I would say
 16 to them this morning is the experts that will
 17 be examined, i.e. questioned in the next days
 18 are experts that have been engaged by the
 19 Commission, by me, in consultation with
 20 counsel, Mr. Roil, and Ms. Fagan, and so they
 21 are our consultants, my consultants, and have
 22 been engaged by me, and this is the
 23 opportunity for those who have a direct
 24 interest in the matter, the players, shall we
 25 say, to examine these experts and ask them

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1 questions, and, of course, counsel will ask
 2 questions of the experts and at the end of the
 3 day I will probably ask questions of the
 4 experts also. So that is the reason that
 5 we're here, and as I said, saying this for the
 6 benefit of the workers, their families, and
 7 the general public. There will be some
 8 changes in the format this time, and Ms. Fagan
 9 will explain these to you.
 10 MS. FAGAN:
 11 Q. Thank you, Commissioner. A couple of the
 12 changes that the parties would already be
 13 aware of is that the hours are different. We
 14 will be going to 5 o'clock and we will only be
 15 taking one hour for lunch between 1 and 2, and
 16 the breaks are slightly different. So we'll
 17 start at 9:30 and we'll go until 11. Then
 18 we'll take a fifteen minute break, and we'll
 19 go from 11:30 to 1, start again at 2, break at
 20 3:30 to 3:45, and then continue on until 5
 21 o'clock. The July 1st holiday is Thursday,
 22 and, therefore, we have brought in these
 23 experts, the NRC is local here in St. John's,
 24 but the other three experts have travelled and
 25 we'd like to try and get this information in

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1 in the three days. Before I ask to have Ms.
 2 Turner sworn, I'd like to just take a short
 3 safety moment because it's been quite some
 4 time since everybody has been here and to
 5 remind you there are three exits in the room
 6 which you can see, there are also three
 7 stairwells. There is the stairwell that you
 8 came in and there are also two stairwells at
 9 either side of the building. They exit onto
 10 the rear of the building and they are fairly
 11 steep, so if you're going to take the
 12 stairwells on either side, just be a little
 13 careful with your step and don't use the
 14 elevator. Beyond that, the procedure will be
 15 that I'll introduce Ms. Turner and she will be
 16 sworn, we'll have the exhibits entered. Then
 17 I will lead evidence as to Ms. Turner's
 18 expertise, and then the parties will have the
 19 opportunity to question Ms. Turner on her
 20 expertise if they wish. Once that has been
 21 completed, I will then lead Ms. Turner through
 22 her three reports. She will deal with all
 23 three reports at once, and when she has
 24 completed the direct presentation, then each
 25 of the parties will have the opportunity to

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1 question Ms. Turner on all three reports.
 2 That will be it from a procedural perspective.
 3 Now I would ask to have Kimberley Turner
 4 introduced. Registrar, could you please have
 5 the witness sworn.
 6 MS. KIMBERLEY TURNER (SWORN) EXAMINATION-IN-CHIEF BY MS.
 7 FAGAN:
 8 MS. FAGAN:
 9 Q. Thank you, Ms. Turner. There are five
 10 documents which Ms. Turner will be referring
 11 to. The first one will be marked Exhibit 207,
 12 or 00207, and that's the CV of Ms. Turner.
 13 The CV of Ms. Turner was circulated to the
 14 parties some time ago, however, I asked Ms.
 15 Turner to add some information with respect to
 16 her publications and activities, and,
 17 therefore, the CV that was circulated has been
 18 revised to add additional information. The
 19 first page is fine, but there are three
 20 additional pages. We have hard copies here
 21 for those that have not already received a
 22 copy. Some of the lawyers who were here
 23 earlier this morning did receive copies, and
 24 Ms. Williams has a number of copies that, if
 25 she wants, I can take them and pass them

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1 around. As well, there is the exhibit list.
 2 So Mr. Roil will circulate that. Thank you.
 3 The other exhibit will be 208, the Passenger
 4 Worker Survey. Exhibit 209 is the report on
 5 Best Practises and Organizational and Safety
 6 Culture. Exhibit 210 will be a Review of
 7 Selected Offshore Petroleum Regulatory
 8 Regimes, and the last Exhibit 211 is the
 9 PowerPoint. The PowerPoint has been changed
 10 slightly in that we will not refer to the last
 11 three slides. So we didn't bother to make
 12 copies. When we get to where we're finished,
 13 we'll finish, and we just won't bother with
 14 the last three slides. We've just changed the
 15 sequence a little bit and we'll cover that
 16 information as Ms. Turner presents. If that's
 17 acceptable, Commissioner, could we have those
 18 five entered.
 19 COMMISSIONER:
 20 Q. Yes, absolutely.
 21 MS. FAGAN:
 22 Q. Mr. Roil is also circulating an exhibit list
 23 for the group. Now the first order of
 24 business is to examine and explore your
 25 expertise, so I would ask to have Exhibit 207

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1 brought forward on the screen so the parties
 2 can see it, and this is the CV of Ms. Turner.
 3 I would just like to explain the areas that
 4 Ms. Turner will be covering. Ms. Turner is an
 5 expert with respect to topics of aviation
 6 safety and risk management, noting that these
 7 topics are fundamental to the material covered
 8 in the three reports. Therefore, I will ask
 9 her to refer to her CV. I will have you note
 10 that with respect to the regulatory review
 11 report, I am asking to have Ms. Turner
 12 declared as an expert in aviation safety
 13 oversight, not as an expert in offshore oil
 14 regulators. That's not her area. What she
 15 did in that report is she reviewed and took a
 16 high tabletop review of what is going on with
 17 some selected oil regulators, but once she
 18 moved past just a very, very general quick
 19 overview, she then focused on aviation
 20 oversight which is her area of expertise and
 21 which is the subject matter of this inquiry.
 22 So I wouldn't want people to be misled and to
 23 think she's an expert in how all these oil
 24 regulators operate. She is not. Ms. Turner,
 25 can you please provide a brief summary of your

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1 background, a summary of your consultancy's
 2 team expertise because your reports have been
 3 prepared by your company, and a description of
 4 your company, Aerosafe Risk Management.
 5 MS. TURNER:
 6 A. Yes, thanks, Ms. Fagan, and good morning,
 7 Commissioner. In terms of my background, I've
 8 been working in the field of aviation safety
 9 and risk management for just on 14 years. I
 10 founded Aerosafe Risk Management in 1997 and
 11 our head office is in Sydney, Australia. Over
 12 the last 14 years we've grown as an
 13 organization and now have representative
 14 offices in Washington, DC, here in North
 15 America. In August, it will be five years
 16 since we've been operating in Canada and the
 17 US, New Zealand, and partner offices in India
 18 and China.
 19 In terms of my professional background, I
 20 have an aviation operations management
 21 background. I commenced in the military, but
 22 very early in my career got involved in the
 23 risk management field. I'm a certified
 24 practising risk manager and have also held a
 25 number of appointments in the developmental

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1 area, in the standards area, and certainly in
 2 education.
 3 In terms of our team, we have a fairly
 4 specialized group of people. We had five or
 5 six consultants on the Aerosafe team work on
 6 the various reports in a team effort. The
 7 first consultant, senior risk advisor, Robin
 8 Graham, has an aviation background in accident
 9 investigation. He's also an air traffic
 10 controller and a pilot. Our second
 11 consultant, Mr. Michael Barron, he's our
 12 company's chief risk officer. Michael has a
 13 background in governance, risk management and
 14 compliance, and holds two Masters Degrees and
 15 has commenced his PhD this year. His role was
 16 really to do a technical review and ensure our
 17 methodology was sound. Our third risk
 18 advisor, Sarah Fitzgerald, is an aeronautical
 19 engineer and has a research background, and
 20 two of our other risk advisors in our
 21 Washington, DC office, Ms. Elaine
 22 (Unintelligible), and Mr. Michael Roberts,
 23 both coordinated and assisted with the
 24 worker's survey.
 25 MS. FAGAN:

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1 Q. Can you provide a review of the process
 2 because what you're here to speak about are
 3 three reports? So what we're interested in,
 4 as not only the people who created the
 5 reports, but what was the process before they
 6 were issued and provided to the Commissioner?
 7 MS. TURNER:
 8 A. Sure. I will cover this in a fair bit of
 9 detail as I walk through the three reports,
 10 but just as a high level summary, the first
 11 report we were asked to do was to conduct a
 12 helicopter safety passenger survey of the
 13 workers, and in order to undertake that work
 14 there was three key areas that we looked at.
 15 First was looking at the survey
 16 distribution and how to actually administer
 17 the logistics of that survey. The second was
 18 actually the design and development of the
 19 survey itself and so we do have experience in
 20 survey development and the development and
 21 issuing of surveys is a key risk
 22 identification tool, so we've been using that
 23 quite extensively throughout our whole
 24 company's history. The third aspect was
 25 actually the compilation of the results and

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1 the publishing of that, and I'll speak when I
 2 get to that report in particular detail about
 3 that because we did take a very open
 4 transparent approach, and I'll explain the
 5 structure of that report.
 6 Our second report was basically a
 7 research paper, as Ms. Fagan mentioned. It
 8 was an examination of selected regulatory
 9 frameworks around the world, and we did a
 10 tabletop review with publicly sourced
 11 information, and then we were able to draw
 12 some observations and synopsis from that. Our
 13 third report in organizational and safety
 14 culture was really based on the theories and
 15 concepts that are well known and accepted
 16 right across the aviation industry, and so we
 17 have taken that angle and approach in that
 18 work. The reports were all compiled with
 19 various consultants working on that. We then
 20 went through an internal review. They were
 21 signed off internally by our Chief Risk
 22 Officer, and then I released those to the
 23 Commission.
 24 MS. FAGAN:
 25 Q. From your own personal perspective, do you

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1 have any appointments to any boards, and I'm
 2 referring now to page 2 of the CV?
 3 MS. TURNER:
 4 A. Yes. I'm currently a Director of the
 5 International Graduate School of Risk
 6 Management, which is an education body
 7 designed to conduct risk management training.
 8 MS. FAGAN:
 9 Q. Could you briefly review or just give us a
 10 list of your qualifications and awards?
 11 MS. TURNER:
 12 A. Sure. My primary qualification is a certified
 13 practising risk manager's license which is
 14 very similar to the CPA for accounts, but for
 15 in a risk management discipline. I've also
 16 held a number of appointments including an
 17 assessor on the CPRM Panel for the Risk
 18 Management Institute of Australasia. I've
 19 also held various senior lecturing positions
 20 at the post-graduate level at two universities
 21 in Australia. I have published three books in
 22 this field, aviation safety and risk
 23 management, and have certainly developed and
 24 designed various safety management programs,
 25 etc.

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1 MS. FAGAN:
 2 Q. Could you give us an overview of some of the
 3 products and services that your company has
 4 provided and some of the clients who you have
 5 acted for as an expert?
 6 MS. TURNER:
 7 A. Sure. In essence, our organization conducts
 8 three different areas of work or products and
 9 services. Firstly, it's consultancy work. So
 10 working on a range of projects in the risk
 11 management governance and aviation safety
 12 field. So that may include developing
 13 industry risk profiles, undertaking risk
 14 assessments, designing and developing risk
 15 management frameworks, programs, and systems,
 16 and really the implementation side of things.
 17 So that's our consultancy area.
 18 The second part of our organization is in
 19 education and training, and I would estimate
 20 approximately 40 percent of our work is in the
 21 training area and in terms of numbers, we
 22 conduct everything from short courses all the
 23 way through to post-graduate training and
 24 issue various qualifications in collaboration
 25 with higher education institute.

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1 The third aspect of our organization and
 2 our business runs a program called the
 3 Aviation Safety Network. This was founded in
 4 2003 and that's an ongoing implementation
 5 program, a coaching and facilitation service
 6 to work with organizations to implement and
 7 enhance their risk and safety management
 8 programs. We currently have 23 organizations
 9 in three countries that have been on that
 10 program for a number of years, and in the last
 11 18 months the Australian aviation regulator,
 12 CASA, has actually picked up that model and
 13 the Aviation Safety Network Program is
 14 currently delivered to 47 percent of the
 15 Australian aviation industry.

16 MS. FAGAN:
 17 Q. I asked a question about the client base, and
 18 now I've turned to page 4 of your CV, and it
 19 takes up an entire page starting with the A's
 20 and going to the Z's. So could you just
 21 highlight a few of your clients that may be of
 22 interest or relevance to this inquiry?

23 MS. TURNER:
 24 A. Sure. Over the course of the last 14 years
 25 our organization has worked with over 260

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1 organizations in 14 countries around the
 2 world. So we really are a consultancy
 3 specializing in this field. The client list
 4 that you see is just a selected client list
 5 and that was provided to give you a bit of an
 6 overview of the areas that in particular I've
 7 been involved in. So you'll see that there's
 8 a fairly heavy military and defense background
 9 there. I have worked on the design and
 10 development of risk management programs for
 11 the Australian Defense Force, have advised the
 12 Canadian Defense Forces, and we've just
 13 commenced our first contract with the US
 14 Department of Defense.

15 A couple of other areas there you'll see
 16 in terms of other industry sectors that aren't
 17 necessarily aviation related, such as the
 18 Department Primary Industries and Integral
 19 Energy. Both of those organizations are from
 20 other industry sectors, but have aviation
 21 assets, and so my role in those projects has
 22 really been to look at aviation contract
 23 management on either side. You will see a few
 24 familiar names there from the Canadian
 25 industry such as Transport Canada, and CHC,

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1 etc. CHC, as you know, is a fairly global
 2 company and has a very large presence in Asia
 3 Pacific region, and members have attended our
 4 training courses down in Australia. More
 5 recently we've been working with Transport
 6 Canada and have conducted a number of safety
 7 management system forums to train the
 8 regulators and inspectors on the
 9 implementation of that philosophy and
 10 practise.

11 MS. FAGAN:
 12 Q. Okay, thank you. That would be all I would
 13 like to ask Ms. Turner with respect to her
 14 expertise and I would like to have her
 15 declared an expert, however, the counsel for
 16 the parties with standing may have some
 17 questions for Ms. Turner.

18 COMMISSIONER:
 19 Q. Yes, okay. Well, ladies and gentlemen, you've
 20 heard Ms. Turner. Are there any counsel for
 21 the parties with standing who would like to
 22 ask her any questions on her - further
 23 questions on her expertise? No. All right
 24 then, Ms. Fagan.

25 MS. FAGAN:

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1 Q. I don't know if you need a formal declaration.
 2 I think she's covered her area fairly well.

3 COMMISSIONER:
 4 Q. Well, I did engage her as an expert, so I
 5 guess I need only repeat that.

6 MS. FAGAN:
 7 Q. Thank you. We would now refer to the
 8 PowerPoint presentation which is Exhibit 211,
 9 and I understand that once the Registrar gets
 10 the PowerPoint on the screen, Ms. Turner will
 11 move the mouse and control the pace of the
 12 slides. So can we refer to Slide 2, and Ms.
 13 Turner would you give us an overview of how
 14 you're going to tackle the presentation of the
 15 three reports?

16 MS. TURNER:
 17 A. Sure. Thank you, Ms. Fagan. In terms of this
 18 presentation, I've got a little bit of a task
 19 to undertake to cover three expert reports in
 20 the time this morning. First of all, I thought
 21 I'd cover our terms of reference just to
 22 really clearly articulate what our scope of
 23 work was. In terms of each report, I'll then
 24 walk through each one one at a time. I'll
 25 provide a background as to how we came to

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1 develop the report. I'll highlight some of
 2 the key areas and key content in those reports
 3 that might be of interest to the public and
 4 certainly to this inquiry, and throughout that
 5 I'll make some comments from my perspective as
 6 to what I believe those results mean.
 7 MS. FAGAN:
 8 Q. So before you actually give us the terms of
 9 reference, can you describe your involvement
 10 with the inquiry leading up to your assignment
 11 because the terms of reference are dated April
 12 of 2010.
 13 MS. TURNER:
 14 A. Yes.
 15 MS. FAGAN:
 16 Q. However, you started in the fall or summer of
 17 2009. Can you just give us a brief overview
 18 of what led up to the eventual terms of
 19 reference?
 20 MS. TURNER:
 21 A. Sure. In the summer of 2009, I was approached
 22 by Inquiry Counsel and we met and discussed
 23 the opportunity to provide some consultancy
 24 support to the Commissioner and to the
 25 Inquiry, and we were retained around that

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1 period in September last year. I did provide
 2 evidence to the Inquiry in November, 2009, and
 3 covered a range of topics, but in essence
 4 looked at aviation governance and oversight,
 5 also looking at the application of risk
 6 management principles and techniques, and then
 7 aviation contract management and safety
 8 management systems. While I was here in St.
 9 John's, I had the opportunity to have some
 10 meetings with legal counsel from most of the
 11 parties, including HMDC, Suncor, Husky, CAPP,
 12 C-NLOPB, and I also had the chance to go and
 13 spend about half a day out at Cougar
 14 Helicopters inspecting their facilities,
 15 understanding the scope of their safety
 16 programs, and their assurance regimes.
 17 In addition to that, I met with
 18 representation from the unions and have met a
 19 number of workers, both formally and
 20 informally here in St. John's. Over the last
 21 ten months, I have been fairly interactive and
 22 have had a range of e-mail correspondence,
 23 telephone meetings, etc, and so I do believe I
 24 have a fairly good understanding of the
 25 context of the industry here and the issues

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1 that are being addressed by the Inquiry.
 2 MS. FAGAN:
 3 Q. Now your terms of reference, for the record,
 4 they were assigned, I believe, on April 23rd,
 5 2010, and what were you asked to do?
 6 MS. TURNER:
 7 A. That is correct. These terms of reference
 8 cover the development of the three expert
 9 reports that we were asked to undertake, and
 10 in terms of the requirements, there was four
 11 requirements in our terms of reference.
 12 Firstly was to provide a written report
 13 to the Commissioner, which included a
 14 passenger survey and a written report
 15 containing the tabulation of those results.
 16 The second report was a written report to
 17 detail information on oil regulated regimes in
 18 other areas of the world. The third report
 19 was a report that contains an overview of best
 20 practise in organizational and safety culture,
 21 and our fourth was a possible list of reading
 22 material that may be of interest to the
 23 Inquiry.
 24 COMMISSIONER:
 25 Q. Just to interrupt for a moment, you're going

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1 to control the - so you could bring that up
 2 really as people want to see it, you know.
 3 MS. TURNER:
 4 A. Yes.
 5 MS. FAGAN:
 6 Q. Now we are, I believe, ready to get into the
 7 first report, is that where we're going?
 8 MS. TURNER:
 9 A. Yes.
 10 MS. FAGAN:
 11 Q. Okay. The slide that you just skipped over
 12 was the team, and I believe we've covered the
 13 team and all the various members that went
 14 into the reports through the examination on
 15 expertise. As we go through each report, you
 16 may draw some more information on how these
 17 various people played a role in developing the
 18 reports. So the first report that we're going
 19 to deal with is the passenger survey.
 20 MS. TURNER:
 21 A. Uh-hm.
 22 MS. FAGAN:
 23 Q. We're then going to go through the review of
 24 the selected offshore petroleum regulatory
 25 regimes, and the last report that we'll cover

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1 is the one on organization and safety culture.
 2 So the survey report, which I believe is -
 3 well, it's the larger report, in any event,
 4 from pure paper. I can't say, and you'll have
 5 to speak to which one took the most work. You
 6 can now start with what you want to tell us
 7 about how the survey - I believe we should
 8 start with the survey itself.

9 MS. TURNER:
 10 A. Yes, thank you. I thought I might just give
 11 you a brief overview of how we actually
 12 distributed the survey. Then I'll come to the
 13 actual structure and the development, and then
 14 we'll spend the majority of our time really
 15 looking at some of the key results that may be
 16 of interest.

17 First of all, can I just say I was
 18 absolutely blown away with the response from
 19 the workers. We had 991 workers respond to
 20 the survey in just over a six week period.
 21 That is a very, very large response rate for
 22 any survey, and I really believe it gives us
 23 an excellent foundation for these results to
 24 really communicate the views of the workers in
 25 the various areas. So I'd just like to thank

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1 everybody for taking the time to do that. In
 2 terms of the three reports, they really do
 3 fall into the topics of aviation safety and
 4 risk management, but have specific application
 5 in some sub-topics that I will cover.

6 In terms of the worker's survey, it
 7 really was designed to gauge the views of the
 8 workers, their perceptions, their concerns,
 9 their areas of interest, and certainly some
 10 ideas for improvement, and it does give us a
 11 snapshot as to the culture at a particular
 12 point in time. In terms of the worker's
 13 survey itself and the distribution, in looking
 14 at the timelines, we chose a period of six
 15 weeks as that was representative of a normal
 16 cycle of travelling offshore and we felt that
 17 that would give us the maximum coverage to
 18 cover the most amount of people in that time.

19 In terms of how it was distributed,
 20 ideally with surveys in this modern day and
 21 age, the best way is actually to distribute
 22 them electronically, get everybody's e-mail
 23 addresses, send them out, and then you've got
 24 validation as to exactly who has undertaken a
 25 survey. Just given the context and the setup

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1 here and people's access to the internet and
 2 also contact details, we had a lot of
 3 discussion with the Inquiry and with the
 4 parties with interest, and certainly from our
 5 perspective made a decision to issue the
 6 survey in hard copy. Now the survey was a
 7 four page survey, as you can see here. Each
 8 survey was actually numbered and had a serial
 9 number and was printed in colour. Now in
 10 terms of how to distribute this to the
 11 workers, after consultation with the various
 12 parties, and given that there was an
 13 acknowledgement that this could be undertaken,
 14 we identified that the check-in area at Cougar
 15 was the best place as it as a single gateway
 16 of the workers travelling to and from the
 17 installations to actually issue the survey.
 18 In terms of how that was undertaken, there was
 19 letters provided to inform the workers from
 20 their employer that the survey was to take
 21 place. The main reason for that was to
 22 validate the legitimacy of this activity, and
 23 the Commissioner released a letter, an
 24 individual letter to the workers that was
 25 placed with the survey in an envelope and

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1 provided and given out by hand as the
 2 passengers checked in at the heliport.

3 The survey itself takes about
 4 approximately 10 to 15 minutes to complete and
 5 the workers were asked to arrive at the
 6 heliport approximately ten minutes early so
 7 they could undertake this activity. When the
 8 workers came to the check-in area, they were
 9 provided with the envelope, with the
 10 Commissioner's letter, and with the survey
 11 itself. Pens and clipboards were out there
 12 and what we did is we placed a secure locked
 13 box at the heliport so that on the completion
 14 of the survey the workers could drop their
 15 survey, put it in a sealed envelope, and
 16 actually pop it in that secured box. We then
 17 had an Inquiry's representative clear that box
 18 regularly which happened in the early days in
 19 a daily basis, and then later in the six week
 20 period approximately every two days or so.

21 One of the other things to note, given
 22 that we were anticipating 1000 to 1500 surveys
 23 to be distributed, they were actually drip fed
 24 to the Cougar check-in staff so that there
 25 wasn't a large box of unsecured surveys

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1 sitting there, and so we actually did have
 2 visibility of the actual volume and numbers of
 3 surveys going through. When I get to the
 4 report itself, I will cover a couple of
 5 limitations because obviously if you're on the
 6 very early flight of the day, getting to the
 7 heliport ten minutes early, you probably may
 8 or may not be as motivated to fill in a survey
 9 as those that arrive at 10 or 11 o'clock in
 10 the day, and we did see a bit of a dip in the
 11 response rate for various factors such as
 12 that.

13 A couple of the areas of integrity that
 14 really needed to be maintained was firstly to
 15 do the best possible to ensure that the
 16 workers only received one survey, and we
 17 really did intrust that into the distribution
 18 process. Where there was cancelled flights or
 19 delayed flights due to weather and people had
 20 already been issued with the survey, the
 21 actual number of surveys provided to the
 22 check-in staff took that into account. It is
 23 a voluntary survey and although it's ideal to
 24 ask people to fill it in individually, we
 25 recognized that some people may have had a

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1 discussion or really talked through some of
 2 the issues, but certainly from my perspective,
 3 I'm not concerned that that jeopardized the
 4 integrity of the survey, given that this has
 5 been a very, very open topic for the last six
 6 to twelve months. So the report - sorry, the
 7 surveys themselves were then collected, they
 8 were couriered to our office in Washington,
 9 DC. Upon receipt, they were registered,
 10 opened, serial numbers marked, and then the
 11 results collated by our two risk advisors
 12 there in DC.

13 MS. FAGAN:
 14 Q. Were envelopes provided with the survey and
 15 letter?
 16 MS. TURNER:
 17 A. Yes, they were. So as you can see, an
 18 envelope to put the survey in after it was
 19 complete to actually keep it confidential and
 20 private so that the workers had confidence
 21 that it was the survey collators that would be
 22 seeing that was actually issued.

23 MS. FAGAN:
 24 Q. Did you have any of your staff attend at the
 25 Cougar heliport to observe the activities,

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1 such as you've mentioned, discussion -
 2 MS. TURNER:
 3 A. Uh-hm.
 4 MS. FAGAN:
 5 Q. You know, it was a free survey, there was
 6 nothing to stop somebody from discussing it
 7 with other workers or with family members
 8 either before or after they completed it or
 9 while they were completing it.

10 MS. TURNER:
 11 A. Yes, sure.
 12 MS. FAGAN:
 13 Q. So what observations, if any, and who attended
 14 the heliport on Aerosafe's behalf?
 15 MS. TURNER:
 16 A. Sure. Part way through the survey
 17 distribution at about week four, our Chief
 18 Risk Officer, Michael Barron, actually came to
 19 St. John's and conducted some observations of
 20 the survey distribution process, and he was
 21 very satisfied that the process ran very
 22 smoothly. His observations when he came back
 23 here to brief myself and the Commissioner were
 24 very positive. He mentioned that the workers
 25 were all quite engaged and enthusiastic with

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1 the process, people took the survey, filled it
 2 in quietly and handed that survey back in. So
 3 Michael actually reviewed that process over a
 4 couple of different shifts, from the early
 5 flight on a couple of days here in St. John's.
 6 Early on in the first four days, the
 7 Inquiry also had another representative out
 8 there to really get the process moving and
 9 administer that and received some good
 10 feedback there as well.

11 MS. FAGAN:
 12 Q. Thank you. Once the -- the distribution was
 13 one of the issues. You mentioned that the oil
 14 companies or oil operators provided letters or
 15 notice.
 16 MS. TURNER:
 17 A. Uh-hm.
 18 MS. FAGAN:
 19 Q. To the workers about the survey; one, to
 20 confirm it was legitimate.
 21 MS. TURNER:
 22 A. Yes.
 23 MS. FAGAN:
 24 Q. The other to encourage involvement and to show
 25 up at the heliport ten minutes early so that

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1 there would be enough time to complete it. Are
 2 those letters or notices that each of the oil
 3 operators sent, are they contained within your
 4 report?
 5 MS. TURNER:
 6 A. Yes, they are. We had included those as an
 7 appendix to the survey report, so that the
 8 whole workforce regardless of what
 9 organization they worked with could actually
 10 see the notices from the parties.
 11 MS. FAGAN:
 12 Q. Okay.
 13 MS. TURNER:
 14 A. Sorry, one other thing. Given that it was a
 15 six week period, we did acknowledge that there
 16 would be a group of people that may not travel
 17 through the heliport over that period, and in
 18 the notices there was an opportunity for
 19 people to contact us direct to complete the
 20 survey. We had approximately 15 inquiries
 21 that came direct to our e-mail account or our
 22 phone number in DC requesting that, and the
 23 surveys in those instances were post to the
 24 employee and were returned and the serial
 25 numbers validated. So a small percentage of

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1 people that missed out with that process that
 2 still undertook the survey.
 3 COMMISSIONER:
 4 Q. You haven't mentioned, but I think it is
 5 correct that all blank copies of the survey
 6 had a differing serial number?
 7 MS. TURNER:
 8 A. That is correct.
 9 MS. FAGAN:
 10 Q. The survey itself, the questions, can you tell
 11 us how you came up with the questions? I
 12 mean, I think we've covered how it was
 13 distributed. There were 36 questions?
 14 MS. TURNER:
 15 A. That's correct.
 16 MS. FAGAN:
 17 Q. So what - how did you come up with them.
 18 MS. TURNER:
 19 A. Sure.
 20 MS. FAGAN:
 21 Q. What information went into it?
 22 MS. TURNER:
 23 A. Our first starting point was within a couple
 24 of days of the release of the Commissioner's
 25 issues list, we examined that issues list,

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1 took that into account to really base the
 2 survey on the structure and the content to
 3 cover off on a number of those topics, and
 4 that issues list is posted on the Inquiry's
 5 website. So that was our initial starting
 6 point. Following that, you'll see with the
 7 survey itself there are four parts of the
 8 survey. Part I is the demographic
 9 information. Most surveys have that, and
 10 we're looking at age, gender, job role, etc.
 11 The second part was focused around helicopter
 12 operations themselves and a few questions
 13 around confidence in the safety of helicopter
 14 passenger transportation, and there is
 15 Question 7 through to 21 in Part II, and that
 16 goes get into some of the technical aspects
 17 such as equipment, training, flight briefing,
 18 and confidence and a feeling of confidence to
 19 travel.
 20 The third part was really delving into
 21 elements that give indicators around the
 22 safety culture and I will talk to that
 23 particularly when I reference report three
 24 around organizational and safety culture. So
 25 we selected a number of questions to just

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1 gauge the level of knowledge, understanding,
 2 awareness, in various topics under that safety
 3 culture aspect and you'll see Question 22
 4 through to 34 around that. Now the first 34
 5 questions of the survey were check boxes and
 6 were either "yes" or "no" questions, or
 7 provided the participant the opportunity to
 8 pick something on a scale of 1 to 5.
 9 Obviously, that provides us good stats
 10 and data, but it doesn't necessarily give the
 11 workers the opportunity to put their thoughts
 12 and specific comments forward, and so Question
 13 35 and 36 were designed as open free text to
 14 allow the workers to highlight any particular
 15 concerns that they had. So Question 35 asked
 16 the survey participants to list their top
 17 three concerns in relation to helicopter
 18 transportation, and in the survey we thought
 19 it was important to really capture the
 20 thoughts and the ideas of any opportunities
 21 for improvement or good ideas about how things
 22 could be potentially fixed, enhanced, or
 23 improved. So Question 36 asked, "What
 24 improvements would you like to see in
 25 helicopter operations", and we had

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1 approximately 2000 open field response in
 2 Question 35 and 36. So that really does give
 3 you an indication as to the level of interest
 4 in this whole area.

5 MS. FAGAN:
 6 Q. When you were deciding on the structure of the
 7 survey, have you conducted surveys in the past
 8 or was there a methodology or a reason - I
 9 mean, was this deliberate or did you just come
 10 up with it?

11 MS. TURNER:
 12 A. Yes, sure. I guess there's a bit of a
 13 methodology and theory of how you build
 14 surveys to ask similar questions in different
 15 ways to validate the answer, and I'll take you
 16 through a few of those as I talk through the
 17 results. So firstly we looked at the list of
 18 the Inquiry's issues list. We then developed
 19 that structure into four parts. Then drilling
 20 down into some standard questions that are
 21 asked quite consistently across the various
 22 brackets. Obviously, the helicopter
 23 transportation was designed predominantly
 24 using the issues list. We did validate that
 25 through a number of other worker surveys that

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1 had been conducted in the 1996 and 2000 period
 2 in offshore safety areas, and also aviation
 3 safety culture surveys have been very, very
 4 big and prominent in the aviation industry in
 5 the last 20 years, so we did leverage off some
 6 of that work conducted in the past.

7 Finally, with that I did bring the draft
 8 survey back to the Commissioner and had a good
 9 discussion about whether or not the pitch, the
 10 tone, and the areas of focus really would
 11 deliver on the areas that the Commissioner was
 12 interested in, and he was satisfied with the
 13 structure of the survey.

14 MS. FAGAN:
 15 Q. Before we moved into the - one area is the
 16 limitations, but you have mentioned the
 17 Commissioner, and this was something that he
 18 asked you to do. So in addition to the
 19 notices from the oil operators, which is
 20 contained in the report, I also understand the
 21 letter you refer to, the Commissioner's letter
 22 which was addressed to the workers, I would
 23 like you to please refer to that letter and
 24 read it because I think that best speaks to
 25 why this was done, and that was what was said

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1 to the workers prior to them embarking on
 2 actually giving their answers. So before we
 3 get their answers, I'd like to know what was
 4 said to them.

5 MS. TURNER:
 6 A. Thanks. This letter is in the leading pages
 7 of the survey report, and it was dated March
 8 30th, 2010. The letter reads, "Dear
 9 helicopter passenger; As part of the Inquiry
 10 process, I have engaged a company called
 11 Aerosafe Risk Management to conduct a survey
 12 of offshore worker's opinions on helicopter
 13 travel safety issues. This survey will be
 14 conducted over a six week period commencing in
 15 early April. The oil operators and Cougar
 16 have agreed that the survey may be conducted
 17 as the helicopter passengers prepare to take
 18 flights to the offshore installations. When
 19 you check in at Cougar Helicopters you will be
 20 given an envelope containing the survey and a
 21 cover letter from me. The survey can be
 22 completed in about ten minutes. Once the
 23 survey is complete, it can be placed in a
 24 secure box at Cougar's heliport. It is
 25 important for the Inquiry to have your

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1 cooperation in the survey because it is
 2 important that I know what you think. Yours
 3 sincerely, Robert Wells, Commissioner."

4 MS. FAGAN:
 5 Q. Thank you. Now you mentioned there were some
 6 assumptions and limitations. Have you fully
 7 covered that topic? Because I think the next
 8 thing is what were the responses.

9 MS. TURNER:
 10 A. Sure. In terms of any survey that is
 11 voluntary, one of the assumptions and
 12 limitations is that people will fill it in to
 13 the best of their ability and will provide
 14 true and accurate information. The fact that
 15 we received just under one thousand surveys
 16 really does give us a very solid sample base,
 17 as opposed to maybe only surveying 100
 18 workers, and so as I talk through the results,
 19 you'll see some validation of topics that were
 20 already covered in the Inquiry, certainly
 21 validation of areas of concern and some
 22 interesting results that I'll draw your
 23 attention to that may be worth considering in
 24 further detail.

25 In terms of a chance for duplication, I

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1 believe that through the surveys being issued
 2 in hard copy, the serial numbers, the
 3 distribution process, we did reduce the risk
 4 of having people fill in that survey twice.
 5 Obviously, you know, there is probably a
 6 handful of people that may have travelled to
 7 and from the installations in that period a
 8 number of times, but one of the observations
 9 that was made by both the Inquiry's
 10 representative and our chief risk officer
 11 whilst down at the heliport was if people had
 12 completed it, it was "no, thanks, I've already
 13 done that" and certainly I'm confident with
 14 the results that we've had.

15 The other thing to note in the
 16 assumptions and limitations, in looking at the
 17 numbers of workers offshore, we had a lot of
 18 discussion about how many surveys really
 19 needed to be distributed. In the early days,
 20 we were talking that there was approximately
 21 12 to 1300 workers offshore and the C-NLOPB
 22 provided, just prior to the release of the
 23 survey, validation that there is approximately
 24 1800 positions on those installations out
 25 there at the time. So that affects the actual

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1 response rate or percentage.
 2 MS. FAGAN:
 3 Q. I believe now you should be at slide seven,
 4 okay. So we're going to get into the survey
 5 itself. What do you want to tell us about
 6 what's on this slide?
 7 MS. TURNER:
 8 A. Sure. So just to recap, we received 991
 9 survey responses, which is a great result.
 10 The survey was distributed over a six-week
 11 period, so a fairly short turnaround time in
 12 that. I have covered the process for
 13 distribution and collection and throughout the
 14 report, certainly in those leading pages,
 15 you'll see some explanation around the
 16 integrity and survey objectives, et cetera.
 17 As I talk you through this, I'd love to spend
 18 the time to actually go through every single
 19 question and every single answer, but what I
 20 have done, just in the interest of time is
 21 I'll just draw our attention to a number of
 22 those different aspects, and what I would ask
 23 is that you keep what I say in perspective
 24 because I think we all know with surveys, you
 25 can put an emphasis on the data to actually

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1 create a certain message. For every positive
 2 focal point I'll bring out, there'll be those
 3 that have concern and for every question where
 4 I focus on those that concern, there are
 5 certainly those that have confidence in the
 6 system and so I'll try and be quite balanced
 7 in the approach, but certainly the report
 8 needs to be read in its entirety.
 9 MS. FAGAN:
 10 Q. The results themselves, they were compiled at
 11 your office in Washington, D.C.?
 12 MS. TURNER:
 13 A. That's correct.
 14 MS. FAGAN:
 15 Q. So just to finish and round out the creation
 16 of the report, as I understand it, once the
 17 Inquiry representative collected the sealed
 18 envelopes from the secure box, they were
 19 couriered to your office in Washington, D.C.?
 20 MS. TURNER:
 21 A. That's correct.
 22 MS. FAGAN:
 23 Q. That's where they were opened?
 24 MS. TURNER:
 25 A. Correct.

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1 MS. FAGAN:
 2 Q. And then the results were keyed into a
 3 computer?
 4 MS. TURNER:
 5 A. That's right.
 6 MS. FAGAN:
 7 Q. That's what generated all these pie charts and
 8 graphs. Is that correct?
 9 MS. TURNER:
 10 A. That's correct. So the report data entry and
 11 compilation was conducted in Washington, D.C.
 12 All of the original survey reports are still
 13 stored and registered in our office and then,
 14 Sarah Fitzgerald and Michael Barron and myself
 15 actually worked on the actual compilation of
 16 the report itself.
 17 MS. FAGAN:
 18 Q. Could you pull up the report now, which I
 19 believe is Exhibit 208? And as Ms. Turner
 20 indicated, we're not going to go through every
 21 question. It's on the website. People can
 22 read the survey themselves. We're just going
 23 to have a snapshot and cover a few of the
 24 questions to get a sense of what some of the
 25 key issues and concerns were, and there were

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1 some positives. It was a very balanced
 2 approach.
 3 MS. TURNER:
 4 A. Absolutely.
 5 MS. FAGAN:
 6 Q. As you say, for every one who had confidence,
 7 there was somebody who didn't.
 8 MS. TURNER:
 9 A. That's right. Well, just to start off with,
 10 based on 1800 workers being offshore at the
 11 time of the survey and the 991 participants,
 12 that's a survey response rate of 55 percent.
 13 Interestingly enough, if we're looking at 1200
 14 workers being offshore at the time and we
 15 understand that the numbers of workers
 16 fluctuates depending on the activity out
 17 there, based on 1200, that would give us a
 18 response rate of 83 percent. So it really
 19 does depend on how you'd like to look at the
 20 survey, but overall, just on 1,000 people or
 21 just under is very very good in a six-week
 22 period.
 23 For ease of moving through the results,
 24 you'll find that I may just round up or down,
 25 just to move quite quickly, and in terms of

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1 part one, looking at the general information,
 2 the demographics, in terms of the 1,000
 3 workers, approximately 800 of those were age
 4 between 35 and 59. 96 percent of the survey
 5 respondents were male and out of the survey
 6 respondents, 750 of those classified
 7 themselves in the worker category. 154 as a
 8 supervisor or in supervisory and the remaining
 9 100 in other categories. So a fairly large
 10 percentage of workers, 150 plus supervisors,
 11 and then 100 other, which is a fairly balanced
 12 response there as well.
 13 Moving to page 17 on Question 5, I
 14 thought this was worthy of note to really put
 15 some context and perspective around the
 16 discussions that will take place over the next
 17 few days. Approximately 650 make around seven
 18 to nine trips offshore per year and so we took
 19 a trip to actually be being on duty to go out
 20 to work and so we could look at the trip there
 21 and back, or as we know, the helicopters do
 22 jump from installation to installation and so
 23 in terms of this question, it was really how
 24 many trips to the rig or platform do you make.
 25 So seven to nine, on average, you know, once

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1 every six to eight weeks. You'll see there
 2 that there's still quite a large percentage,
 3 90 people responded that they conduct over 12
 4 trips a year. So you can just see the spread
 5 three of frequency of travel.
 6 MS. FAGAN:
 7 Q. Now can you move to part two and highlight
 8 some of the keys points?
 9 MS. TURNER:
 10 A. Sure. Part two, as I mentioned, was really
 11 designed to focus on the helicopter operations
 12 itself and it is important to note that after
 13 any organization experiences an accident,
 14 there certainly is a change in the level of
 15 confidence and perception around safety and
 16 this set of questions was really designed to
 17 gauge that level of confidence, capture
 18 concerns or areas of interest. So part two,
 19 it is important with any type of survey, you
 20 really are getting people's opinions and some
 21 of these issues will be real and others will
 22 be perceived, but the thing that is important
 23 to note that even perception should be
 24 addressed and actioned as much as reality.
 25 Overall the results are fairly balanced,

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1 and I'll just take you through page 19,
 2 Question 7. This was the first question that
 3 was asked in part two around helicopter
 4 operations. The question reads "what is your
 5 level -- what is your confidence level in
 6 respect to the safety of helicopter
 7 transportation?" and you can just see by the
 8 bar charts there the normal distribution bell
 9 curve that you see in survey responses. 37
 10 percent of people indicated an overall
 11 confidence in helicopter travel safety by
 12 rating it a four or a five on a one to five
 13 scale. However, 35 percent of people
 14 indicated the middle bracket and 27 percent of
 15 respondents scored a one or two out of five,
 16 which indicated the not confident aspect. So
 17 you can really see a fairly balanced spread of
 18 those that are confident, those that are in
 19 the middle and those that have indicated that
 20 they are not confident.
 21 Question 8 is similar in its intent and
 22 you'll see a very mirror image response in
 23 terms of the results to Question 7.
 24 MS. FAGAN:
 25 Q. So would this be one of these questions where

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1 it's the same idea but asked two different
 2 ways?
 3 MS. TURNER:
 4 A. Yeah, absolutely, and one was about confidence
 5 and the other one was about how people felt
 6 and so it really is worthy of note, if you
 7 have 300 of your employees saying that they
 8 feel unsafe or they feel -- they believe that
 9 they're not confident, there's ways to
 10 actually address those issues that are raised
 11 in the part 30 -- Question 36 with those
 12 answers.
 13 MS. FAGAN:
 14 Q. And 36 is the ways for improvement?
 15 MS. TURNER:
 16 A. Absolutely.
 17 MS. FAGAN:
 18 Q. So not only -- there's an indication, you
 19 know, that there is a group that could have --
 20 you know, could help with the confidence and
 21 in the survey, they've also provided a way of
 22 improving that situation?
 23 MS. TURNER:
 24 A. Yes, that's correct. In terms of the context,
 25 it's also important to draw attention to the

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1 timing of this survey and it being nearly 12
 2 months from the actual experience of the
 3 accident itself, and so this does demonstrate
 4 the residual confidence level at this point in
 5 time.
 6 MS. FAGAN:
 7 Q. Also, would one of the factors perhaps be that
 8 the Transportation Safety Board has not
 9 released its report yet on the cause of the
 10 accident? So perhaps there's a little --
 11 there may be a little uncertainty because some
 12 of the issues haven't fully -- I guess fully
 13 resolved or fully worked its way through the
 14 system. Would that have an impact?
 15 MS. TURNER:
 16 A. Yeah, I think that is a fair assumption. In
 17 terms of confidence and feeling, the biggest
 18 thing that can combat a lack of confidence is
 19 communication of information. So whether
 20 that's the TSB's report on the technical
 21 details of the accident itself or whether it's
 22 just an understanding and familiar -- being
 23 familiar with helicopter operations and how
 24 that works can certainly provide confidence
 25 with that information.

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1 I will just draw our attention to page
 2 20, Question 10. Page 20, Question 10, this
 3 actually asks survey respondents to indicate
 4 whether they've noticed any safety
 5 improvements or changes since the accident
 6 itself and this was quite encouraging, 65
 7 percent of people said that they had actually
 8 noticed an improvement in safety, and so these
 9 results do need to be looked at, in terms of
 10 the confidence rating back in Question 7 or 8
 11 and it would have been interesting to have
 12 asked Question 7 or 8 directly after the
 13 accident and whether or not the safety
 14 improvements have actually increased
 15 confidence there as well.
 16 I will just go back one question to
 17 Question 9 and I do know that the media picked
 18 up on this question out of the 36 questions
 19 when the survey report was released a number
 20 of weeks ago. "Would you" -- the question
 21 reads, at Question 9, "would you prefer to
 22 travel to the rig or platform by an alternate
 23 means of transport, for example, by boat?" and
 24 again, you can see a fairly balanced response.
 25 37 percent answered yes, 38 percent answered

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1 no, so almost exactly the same, and 21 percent
 2 were undecided, and certainly this question
 3 wasn't put in to be a motive or to drive down
 4 any path, but I note in the early days, it
 5 certainly was a topic of interest of whether
 6 or not an alternate means of transport needed
 7 to be considered.
 8 Moving on to the next bracket of
 9 questions, Question 11 to 15, this bracket of
 10 questions really is focused around emergency
 11 procedures and I won't go into that in too
 12 much detail, but as a general rule of thumb,
 13 two-thirds of people felt that they could
 14 respond to an emergency situation fairly
 15 confidently and in terms of training and the
 16 frequency of that training, there were
 17 questions asked along those lines that
 18 validate the evidence that has already been
 19 heard by the Inquiry in terms of training
 20 being received every three years.
 21 Moving on to Question 16 to 20, this
 22 bracket of questions is predominantly focused
 23 around HUET training, which is the helicopter
 24 underwater escape training, and this has been
 25 a topic of huge interest right across the

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1 Inquiry and certainly these results validate
 2 that topic of interest. So just moving to
 3 page 25 and Question 17, you'll see here that
 4 the question asked was "how effective is the
 5 HUET training?" and the bell curve is actually
 6 skewed to the higher level in terms of the
 7 four and five, in terms of very effective, and
 8 so you'll see 54 percent of passengers have
 9 actually indicated that they find that that's
 10 effective training.

11 In this bracket of questions following on
 12 from the HUET and the training, we asked a
 13 number of questions, for example Question 19,
 14 around the suits. This has been another very
 15 large area of interest and concern and
 16 Question 19 asked "do you have any concerns
 17 with your survival suit?" So moving to page
 18 26, Question 19, you'll see that unlike some
 19 of the other questions that have a normal bell
 20 curve shape, this is a little bit more flat in
 21 its response and so you'll see that in terms
 22 of these results, 34 percent of respondents,
 23 if we're looking at number one and two,
 24 indicate that they're not concerned, but then
 25 we have a similar amount of people, 38

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1 percent, that indicate that they are. Now
 2 these results were actually validated by the
 3 open answer responses, where we received 204
 4 individual comments on suits themselves, and
 5 that was the highest rating frequency in terms
 6 of response. So again, you can get a really
 7 good feel as to where the areas of interest or
 8 concern are with the workers.

9 MS. FAGAN:
 10 Q. So when you say the highest frequency, the
 11 open-ended question was designed to just list
 12 your concerns?

13 MS. TURNER:
 14 A. Yes.

15 MS. FAGAN:
 16 Q. And then you recorded all the raw date of
 17 everything that was said?

18 MS. TURNER:
 19 A. Um-hm.

20 MS. FAGAN:
 21 Q. And if -- are you saying that suits sort of
 22 topped the chart as far as from a discussion
 23 perspective, either concerned or whatever, but
 24 it was the area where all the comment -- the
 25 most comments were received?

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1 MS. TURNER:
 2 A. Yeah, that's right, and I'll just take us to
 3 that and maybe we can work through some of
 4 those top frequency answers because it really
 5 does provide a validation as to some of these
 6 checkboxes and the collection of the stats.
 7 Now one of the decisions we made in compiling
 8 this survey was to actually transcribe every
 9 single written response and place that in an
 10 annex or an appendix to the survey report.
 11 Now although it has bolstered out, as you say
 12 Ms. Fagan, to a very lengthy report, we
 13 thought that that was really important so that
 14 workers could, number one, have confidence
 15 that the results weren't doctored or weren't
 16 summarized to the point where their comments
 17 were lost, and secondly, to give people the
 18 raw data so that as you maybe cruise through
 19 the information, it really does give you a
 20 feel for the topics of concern. So those 204
 21 responses around suits, some people clearly
 22 just wrote suits, where others actually wrote
 23 suits, discomfort, zippers, size, you know, et
 24 cetera. So some people actually went into a
 25 further explanation. Now there are quite a

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1 number of pages, both on the areas of concern
 2 and the areas of interest, but it's really
 3 excellent information that really does provide
 4 the view of the workforce at this snapshot in
 5 time.

6 MS. FAGAN:
 7 Q. Now is there anything else in this section
 8 that's -- it's all worthy, but what you would
 9 like to point out?

10 MS. TURNER:
 11 A. Yes.

12 MS. FAGAN:
 13 Q. This is just an overview. Everybody can read
 14 the entire report.

15 MS. TURNER:
 16 A. Yes, sure. One of the last areas of note in
 17 this part two is we've asked throughout the
 18 survey, a couple of questions around access to
 19 information and communication and on page 27,
 20 Question 21, this question was asked to ask
 21 the workers "when you're travelling by
 22 helicopter, how satisfied are you that you get
 23 the right amount of information regarding
 24 helicopter operations?" and as you can see
 25 here, almost 400 people said that they were

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1 satisfied, yet approximately 300 people
 2 indicated that they were not satisfied and
 3 they're fairly large numbers and as you can
 4 see, you can go either way, but if 300 of your
 5 workers are saying that they're not satisfied
 6 that they're getting enough information, well
 7 that's certainly something that can be
 8 addressed and be addressed fairly easily. The
 9 type of information is still open for
 10 discussion, but that does give you a good
 11 indication and you certainly can't ignore 30
 12 percent of your workforce.

13 MS. FAGAN:
 14 Q. Okay. Can you now move on to part three,
 15 which I believe you indicated dealt with
 16 safety culture or at least gave some
 17 indications of culture?

18 MS. TURNER:
 19 A. Yes. In part three, I just wanted to make a
 20 few comments before we start. In terms of
 21 culture, and this is explored in our third
 22 paper, some people believe that it's quite a
 23 simplistic topic where it's just the way
 24 things are done around here, but there
 25 certainly is a depth of theory about how you

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1 define a culture, the traits and
 2 characteristics of behaviour, values, how
 3 people make decisions, et cetera. In this
 4 part three, we just asked a number of
 5 questions that touched on a few different
 6 aspects around reporting, about their view on
 7 culture, around whether people felt
 8 comfortable to highlight areas of concern, and
 9 you'll see a handful of questions asked around
 10 the structures of their safety management
 11 systems and risk management and really the
 12 organization's policies around these topics
 13 and whether there's an understanding and an
 14 awareness around those things.

15 The culture paper, as I mentioned, does
 16 go through these accepted theories and
 17 provides a grade of maturity. We have not
 18 done an analysis on where this industry fits
 19 in terms of its cultural maturity, however,
 20 the information is provided so that maybe that
 21 work can be undertaken at a future stage.

22 If I can take you to page 28? Page 28,
 23 Question 22, this was one of the responses
 24 that really peaked my interest and the
 25 question reads "do you believe there is an

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1 adequate level of overseeing of safety, safety
 2 oversight for helicopter transportation?" and
 3 you'll see here that 48 percent of respondents
 4 have said yes, they believe there is an
 5 adequate level of safety oversight. 26
 6 percent have said no, and 24 percent have said
 7 that they don't know or they're unsure. The
 8 thing that really peaked my interest in this
 9 was the 24 percent that said that they didn't
 10 know, and I guess I put that down to a couple
 11 of reasons, either one, because people may not
 12 have knowledge as to what safety oversight
 13 activities are undertaken or that they
 14 actually don't know what safety oversight is,
 15 and so I think that's really important to keep
 16 in perspective in looking at these results.
 17 Again, communication or education on what
 18 safety oversight is could possibly reduce that
 19 24 percent of those that are indicating here
 20 that they are unsure or don't know.

21 The topic of safety oversight,
 22 particularly in the aviation industry, is an
 23 extremely defined discipline. It actually
 24 outlines structures, accountabilities, safety
 25 assurance, assurance regimes, compliance, the

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1 management of risk. So I just put that out
 2 because some people may or may not be aware of
 3 that discipline, but it's certainly an area of
 4 growing interest and focus globally in every
 5 industry is the issue of oversight.

6 Okay, the next question that I'd like to
 7 draw your attention to is on page 29. Page
 8 29, Question 25. This question reads "do you
 9 consider your organization or employer to have
 10 an open reporting culture?" Now the reason
 11 why this question was actually asked is in
 12 culture, one of the key measures or traits or
 13 characteristics is all about the openness of
 14 reporting, and I'll talk to that when we get
 15 to paper number three, and you'll see here
 16 again, the bell curve is slightly skewed to
 17 that higher end that it's an open reporting
 18 culture, but there are those that believe that
 19 it is closed. So 40 people, so a small
 20 percentage indicated a one. 122 indicated a
 21 two on that scale. But then there is a large
 22 percentage of people that indicated that they
 23 believed it was open.

24 The next set of questions in this part
 25 three of the report cover safety management

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1 system and again, highlight a few other areas
 2 around reporting. In terms of the safety
 3 management system, a question was asked "does
 4 your organization have a safety management
 5 system in place?" A high percentage of the
 6 respondents actually indicated that they were
 7 aware that the safety management system is in
 8 place. 59 percent of those people indicated
 9 they had received training and 55 percent said
 10 they regularly use their safety management
 11 system. So again, you can see these questions
 12 were asked to validate people's understanding
 13 of the policies, processes and application of
 14 practice, which in turn correlates with some
 15 of the cultural traits and characteristics
 16 around behaviour.

17 MS. FAGAN:
 18 Q. Now safety management system, do you know if
 19 these responses were in connection with a
 20 safety management system generally or for
 21 helicopters in particular?

22 MS. TURNER:
 23 A. My assumption, given the questions asked
 24 around their organization or their employer,
 25 would be the safety management system

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1 generally, and as opposed to the aviation
 2 safety management system that is in place at
 3 Cougar.

4 MS. FAGAN:
 5 Q. Okay, thank you.

6 MS. TURNER:
 7 A. The next bracket of questions in this part
 8 three relate to risk assessment and I'll just
 9 draw your attention to page 32, Question 30,
 10 and there's three questions I'd like to walk
 11 us through here in sequence. In this
 12 question, it asks "does your organization or
 13 employer do risk assessments?" So as in line
 14 with the last question, the intent of this was
 15 really general question about "does your
 16 organization use the risk management process
 17 to undertake these type of assessments?" A
 18 very, very high response rate. 90 percent of
 19 respondents indicated that their organization
 20 did undertake risk assessments.

21 The next question, Question 31 on the
 22 same page, then brings our attention more into
 23 the risk assessments on helicopter operation.
 24 So it reads "does your organization or
 25 employer have a risk assessment on helicopter

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1 transportation?" and I found these results of
 2 particular interest. We had 24 percent say
 3 yes, 22 percent say no, and 51 or 52 percent
 4 say that they didn't know or were unsure.

5 In order to validate this question, on
 6 the next page, page 33, Question 32 then asked
 7 the question "have you seen a copy of the risk
 8 assessment on helicopter transportation?" So
 9 you can see the flow of question. Does your
 10 organization undertake risk assessments? Does
 11 your organization have a risk assessment on
 12 helicopter transportation, and have you seen a
 13 copy? And so you'll see here that 76 percent
 14 were unanswered or invalid. 10 percent said
 15 yes, they had seen a copy. 12 percent said
 16 they hadn't seen a copy and two percent said
 17 they didn't know.

18 This is an area I just wanted to draw
 19 comment on because I guess we all recognize
 20 that there is a range of different risk
 21 assessments that can take place, from the risk
 22 assessment undertaken on the procurement of a
 23 helicopter all the way through to quantitative
 24 assessments on helicopter reliability rates,
 25 right through to the engagement of a

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1 contractor in helicopter -- to undertake
 2 helicopter activities, all the way through to
 3 operational risk management and the risks
 4 associated with loading passengers onto an
 5 aircraft, escape, emergency procedures,
 6 communication, landing, taking off, et cetera,
 7 and so I just really wanted to draw our
 8 attention to that there is this continuum or
 9 style of context. We didn't define in these
 10 questions exactly where the questions sat on
 11 that continuum and it may be an area of
 12 further exploration.

13 In terms of the use of operational risk
 14 management, and I just wanted to coin that
 15 term. Operational risk management or ORM is a
 16 fairly standard term used in the aviation
 17 industry associated with a dedicated risk
 18 assessment around the task profile or the
 19 mission profile. For example, flying to and
 20 from an oil rig, conducting a public relations
 21 flight, conducting a training site or
 22 maintenance test flight. So the use of
 23 operational risk assessments or profiles is
 24 actually a standard tool and we weren't able
 25 to validate whether the ten percent of people

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1 saying in the survey that they've seen a copy
 2 of the risk assessment, whether it was that
 3 type or whether it was something different.
 4 MS. FAGAN:
 5 Q. Now there is a large number that unanswered or
 6 invalid.
 7 MS. TURNER:
 8 A. Um-hm.
 9 MS. FAGAN:
 10 Q. Can you explain what that would mean?
 11 MS. TURNER:
 12 A. Yeah.
 13 MS. FAGAN:
 14 Q. Because in almost all of the questions, there
 15 might be, you know, one percent or half a
 16 percent that would fall into the invalid.
 17 MS. TURNER:
 18 A. Yes.
 19 MS. FAGAN:
 20 Q. But in Question 32, 96 percent, what does that
 21 mean or can you explain why that would have
 22 occurred?
 23 MS. TURNER:
 24 A. Yes, sure. In Question 32, it's 76 percent of
 25 participants left the question unanswered or

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1 invalid. So people didn't check the box. Now
 2 that would make sense if they answered the
 3 previous question of "does your organization
 4 have a risk assessment on helicopter
 5 operations?" If they answered no there, there
 6 is correlation with this unanswered question
 7 in the next one.
 8 MS. FAGAN:
 9 Q. Yeah, and there was 22 no and 51 don't know,
 10 so that's 73 percent that could possibly fall
 11 into the 76 that just didn't answer the next
 12 question.
 13 MS. TURNER:
 14 A. Yeah, that's correct.
 15 MS. FAGAN:
 16 Q. Would you expect -- I mean, you've done -- and
 17 maybe you can't answer this. You have
 18 conducted work for organizations where
 19 helicopter transportation is not their core
 20 business.
 21 MS. TURNER:
 22 A. Yes.
 23 MS. FAGAN:
 24 Q. And this survey is being answered by workers,
 25 you know, commuting back and forth to work.

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1 MS. TURNER:
 2 A. Yes.
 3 MS. FAGAN:
 4 Q. This is not a survey of the workers at Cougar
 5 Helicopters or at an aviation company.
 6 MS. TURNER:
 7 A. Yes.
 8 MS. FAGAN:
 9 Q. So would you expect workers to know about the
 10 helicopter component or the helicopter risk
 11 assessment?
 12 MS. TURNER:
 13 A. Yeah, that's a really good question, and we do
 14 have experience in working with other industry
 15 sectors that use or contract aviation assets,
 16 be that fixed wing or rotary, to undertake a
 17 specific task. So the mining industry uses
 18 helicopters to move around say drill parts.
 19 The power line industry uses helicopters to
 20 inspect their power lines and would put their
 21 observers in the back of aircraft. The
 22 medical industry put doctors and nurses in the
 23 back of aircraft, but the contract may be with
 24 the hospital itself, the same with law
 25 enforcement. So there's many industries where

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1 aviation is not their core business and as you
 2 rightly indicate, the workers of this survey
 3 are non-aviators. They don't have necessarily
 4 an expertise in the aviation industry.
 5 In terms of the level of knowledge and
 6 being familiar with helicopter operations,
 7 there is a fairly defined definition in the
 8 aviation industry of whether people are
 9 passengers or whether they're crew, and so it
 10 is important to note, in this context, the
 11 workers are actually passengers and are not
 12 deemed crew members. As opposed to the power
 13 line industry where you might have an observer
 14 get in the back of an aircraft that is
 15 undertaking a task using the helicopter to
 16 inspect the power line, it gets a little bit
 17 grey as to whether they're a passenger or
 18 whether they're actually participating in
 19 activities that contribute to the safe
 20 operation of the aircraft.
 21 Now if we're just looking at passengers,
 22 and this goes back to one of the earlier
 23 survey questions about what is the frequency
 24 of travel, so a large percentage travel to
 25 the offshore installation seven to nine times

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1 a year, so they're frequent flyers, so to
 2 speak. So one could shape a case that for
 3 those that have that level of frequency in
 4 helicopters and it is part of their job, maybe
 5 there is merit in considering increasing their
 6 level of aviation awareness or basic knowledge
 7 so that they understand how a helicopter
 8 works, how communication works, what happens
 9 when things go wrong, all the way through to
 10 emergency procedures, HUET training,
 11 equipment, access and egress activities.
 12 MS. FAGAN:
 13 Q. So whether they should or shouldn't have more
 14 information is really not your job. That is
 15 for the Commissioner or another undertaking.
 16 MS. TURNER:
 17 A. Yes.
 18 MS. FAGAN:
 19 Q. What you can say is this, as a snapshot, is
 20 what they say they know or don't know?
 21 MS. TURNER:
 22 A. That's correct.
 23 MS. FAGAN:
 24 Q. So if--this survey, you know, is a large
 25 percentage and so what we're hearing is they

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1 don't know about these particular safety
 2 mechanisms, risk assessments -
 3 MS. TURNER:
 4 A. Yes.
 5 MS. FAGAN:
 6 Q. When you drill down and get into the
 7 helicopter operations, they don't have this
 8 information.
 9 MS. TURNER:
 10 A. Yes.
 11 MS. FAGAN:
 12 Q. Whether they should or should not or what
 13 level is not for you to say, you can just tell
 14 us this is the result.
 15 MS. TURNER:
 16 A. That's correct.
 17 MS. FAGAN:
 18 Q. Would that be fair?
 19 MS. TURNER:
 20 A. Yeah, that is fair and that is the result and
 21 in terms of this issue about passenger and
 22 crew, there's a continuum, so you can put Air
 23 Canada on one end where we buy a ticket and
 24 get on a plane; you've got then, I guess
 25 people who that travel regularly with routine

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1 and then you have all the way through to crew
 2 and it is important to note that in this
 3 survey, we're really dealing with that mid
 4 section of demographics.
 5 MS. FAGAN:
 6 Q. Thank you. I believe there is only one
 7 question left and I think that's the
 8 effectiveness of the safety committee because
 9 we did hear evidence through the fall and
 10 winter about the safety committees -
 11 MS. TURNER:
 12 A. Yes, at our operating with the workers.
 13 MS. FAGAN:
 14 Q. And what was the question and the results.
 15 MS. TURNER:
 16 A. The question here was how effective do you
 17 believe your safety committee is in addressing
 18 safety concerns. And the reason why this was
 19 included in Part III under "Culture" was
 20 really about getting that flow of information
 21 and action to address safety concerns and
 22 you'll see here 153 people out of the 991
 23 indicated very effective, a large percentage,
 24 approximately 350 indicated a four on that
 25 scale, and then we have a smaller percentage,

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1 approximately 19 percent of respondents
 2 answered either a one or a two on that scale.
 3 MS. FAGAN:
 4 Q. Is there anything else in this part of the
 5 survey that you would like to comment on
 6 before we move to the free sections?
 7 MS. TURNER:
 8 A. No, that's all I'd like to draw attention to
 9 in Part III. Obviously there's a lot of
 10 information in all of these questions and you
 11 can sit down and draw parallels, et cetera.
 12 MS. FAGAN:
 13 Q. Questions 35 and 36 are the free areas. I
 14 would just ask you to review the top seven
 15 because there's 2000 pieces of raw data and as
 16 I've said a number of times, people can
 17 download the survey and read these results if
 18 they wish.
 19 MS. TURNER:
 20 A. Yes. I'll just draw your attention to page
 21 35, Question 35 and so what we've done here is
 22 as was just mentioned there is over 2000
 23 individual comments that were made in Question
 24 35 and 36 and so we did actually collate and
 25 theme that information and you can see how

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1 that was done in the back annexes. Just
 2 running through the top handful there, you'll
 3 see as previously mentioned 204 are individual
 4 responses highlighted six, the second issue
 5 based on frequency was around helicopter
 6 maintenance and the technical aspects there.
 7 Number 3 was around passenger seating,
 8 including loads, arrangements, seating patens,
 9 etcetera, with 172 people. 164 people
 10 indicated the auxiliary fuel tank location or
 11 issues around the fuel tanks. Search and
 12 Rescue is also on that top list of seven at
 13 No. 5. Flying in bad weather and conditions
 14 around visibility, sea states and limitations
 15 on a aircraft, again getting into some of the
 16 operational risks around an aircraft there,
 17 and then No. 7 is really around communication
 18 and transparency of information around
 19 helicopter operations with just over 100
 20 responses received from that.
 21 MS. FAGAN:
 22 Q. So these were the concerns, was there any
 23 correlation or similarities when you looked at
 24 the top seven areas for improvement?
 25 MS. TURNER:

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1 A. Yes, there was. I'll just take us to the top
 2 seven areas of improvement which is on page 37
 3 and this is actually quite an interesting
 4 result that the top handful of issues that
 5 were listed on the concerns are also the top
 6 handful of issues that are indicated on the
 7 areas for opportunity and improvement and
 8 there is a great correlation with those.
 9 Number one is around additional helicopters
 10 and we've heard a lot about that; number 2,
 11 improved communication and frequency of
 12 information in regard to all aspects of
 13 helicopter operations; three, suits; four,
 14 Search and Rescue; five, auxiliary fuel tanks;
 15 six, seating; and seven, training crops up.
 16 What I've found quite interesting to note
 17 which is on areas of concern, the
 18 communication and information flight came in
 19 at No. 7, but in terms of the areas for
 20 improvement, it really is right up there at
 21 No. 2. So you'll see that there's a hunger
 22 and an interest to get more information.
 23 MS. FAGAN:
 24 Q. In conclusion, because that's about all I have
 25 on the survey report itself, could you just

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1 sum up your thoughts on this report in its
 2 entirety, and I know that's difficult without
 3 having you slant in one direction or the
 4 other.
 5 MS. TURNER:
 6 A. Yes, sure. Overall I would encourage people
 7 to actually really look through the results,
 8 the raw data in the annexes because it really
 9 does give you good insight into people's areas
 10 of interest, concern or improvements. The
 11 response rate really has demonstrated a very
 12 high level to--a very high level of commitment
 13 to safety and to being involved in this whole
 14 process, which I think is fabulous and
 15 certainly not necessarily always there in
 16 every workforce around the world. In terms of
 17 the results, overall they're fairly balanced.
 18 Most questions actually always have a 30/0
 19 split; 30 percent sitting at one end of the
 20 extreme; 30 percent at the other; and 30
 21 percent sitting midway. And there's only a
 22 small number of questions where the results
 23 aren't as balanced and askewed in a different
 24 way. From my perspective the workers that
 25 have completed this survey are highly trained

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1 professionals, have technical expertise, they
 2 have taken the time to complete the survey and
 3 it's really provided some excellent
 4 information on the current state of this topic
 5 at a particular point in time, so it's really
 6 important, particularly as I present through
 7 paper No. 3, which could be seen a very
 8 theoretical paper, that that theory isn't held
 9 in a vacuum. This report actually gives you
 10 some good information that could be fed in and
 11 combined with some of the cultural theory that
 12 I'll talk about later.
 13 MS. FAGAN:
 14 Q. That's all the questions that I have. My
 15 colleague here has pointed out that apparently
 16 at the beginning I gave us a half hour break,
 17 but it is not a half hour break, we're
 18 supposed to break at 11:00 but we're coming
 19 back at 11:15, so I'm finished with the direct
 20 of the survey.
 21 COMMISSIONER:
 22 Q. My schedule says 11 to 11:15.
 23 MS. FAGAN:
 24 Q. Well apparently I may have said 11:30 or
 25 something when I started.

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1 COMMISSIONER:
 2 Q. Oh, I see, okay.
 3 MS. FAGAN:
 4 Q. But just to be clear, it's 11:15, thank you.
 5 COMMISSIONER:
 6 Q. This is the time to take the break then and we
 7 will try to keep to our timelines, so we will
 8 chase you around if necessary to round you up.
 9 Thank you.
 10 (RECESS)
 11 MS. FAGAN:
 12 Q. Thank you, Commissioner. The next report that
 13 I'm going to ask Ms. Turner to review is the
 14 Regulatory Comparative Analysis, and I believe
 15 that we're not going to need to refer to that
 16 exhibit, it is there, especially if counsel
 17 have questions, but I believe we're just going
 18 to speak from the slide show, so we'll call it
 19 up if we need it. The second report that
 20 Aerosafe was asked to complete was a review of
 21 selected offshore petroleum regimes and
 22 regulators and the focus was governance and
 23 oversight arrangements for aviations
 24 activities. So can--how can a review of other
 25 petroleum regulators benefit the inquiry, the

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1 real question is why would you bother, why is
 2 that information helpful?
 3 MS. TURNER:
 4 A. There's real merit in reviewing practices of
 5 what others do around the world for a number
 6 of reasons. You can always learn from what
 7 others do and there's great benefit in
 8 benchmarking and comparing your practices to
 9 those that do a similar job in a different
 10 environment. Certainly in undertaking this
 11 assessment it's very clear that some
 12 jurisdictions are more mature than others and
 13 some have very different size in scope and
 14 context, some are extremely large, others are
 15 very small, but there's definite lessons that
 16 could be learned or it's just interesting to
 17 understand the philosophical approach and why
 18 the different organizations tackle the same
 19 issues in different ways. Our report, our
 20 findings and observations really need to be
 21 kept in perspective, it was a research paper
 22 and it was based on publicly available
 23 information and it just provides that high
 24 level overview of those various approaches
 25 around the world, and I'll try and draw that

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1 out in this presentation.
 2 MS. FAGAN:
 3 Q. Although we have dealt with some of this in
 4 the explanation of your expertise, can you
 5 explain the scope of your review and why you
 6 were suited to do this review, in your opinion
 7 because you've always said you're not an
 8 expert in how petroleum regulators operate
 9 generally.
 10 MS. TURNER:
 11 A. Uh-hm. Yeah, that's right. In the previous
 12 report presentation we talked about industries
 13 that aviation is not their core business, but
 14 they certainly rely on aviation to undertake a
 15 particular activity. The offshore petroleum
 16 industry definitely falls into that basket.
 17 Without expertise and background into aviation
 18 safety and oversight, there was logic in
 19 undertaking this piece of work to review
 20 selected regulatory regimes, understand then
 21 how safety takes place and then really
 22 narrowing down and focusing on where there any
 23 particular practices or approaches in relation
 24 to helicopter transportation that could be
 25 brought out for this inquiry. It's important

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1 to note that we didn't conduct site visits, we
 2 didn't go to any indepth, you know, point of
 3 actually visiting, meeting, interviewing
 4 people, we did make contact with a number of
 5 the regulators and most were very helpful,
 6 including the MMS in the U.S., which
 7 considering the BP incident that was going on,
 8 we did have some good interaction with them
 9 and I'll refer to those conversations and
 10 findings throughout the presentation. So,
 11 although I will cover the high level overview
 12 and structures and context of the industry,
 13 drilled down into regulatory oversight, then I
 14 will draw our attention to the practices in
 15 helicopter aspects.
 16 MS. FAGAN:
 17 Q. Okay, now the selected offshore petroleum
 18 regulators, which ones did you select, why did
 19 you select them? Were you told, you know,
 20 this is who you must go check out? We have a
 21 number there, can you just lay all that out
 22 for us?
 23 MS. TURNER:
 24 A. Yes, sure. We originally first looked at how
 25 many offshore oil regulators there were around

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1 the world and then in understanding who was
 2 around, as a team we actually sat down and
 3 with the background and understanding of what
 4 was available thought what would be of
 5 interest and where would there be key lessons
 6 learned that could be drawn out through this
 7 inquiry here. The first country or regulator
 8 that was selected was the United Kingdom and
 9 no surprises there, I guess there's some great
 10 practices that have come out of the UK and
 11 their oil and petroleum industry is quite
 12 mature.

13 The second was the United States with a
 14 particular focus on the Gulf of Mexico, again,
 15 before the deep water horizon incident
 16 happened back in April, we selected this
 17 aspect and predominantly because it was in
 18 North America and again, the pure volume of
 19 the activity that takes place down there led
 20 us to think there might be some practices that
 21 would be of interest.

22 The third country or regulator was
 23 Australia and when I actually present on the
 24 structural changes that have occurred in the
 25 last four or five years, I think you will

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1 agree with me that there are some really good
 2 areas of interest that are worthy of
 3 consideration and of note. Norway was also
 4 selected and I understand that the
 5 Commissioner and Inquiry Counsel conducted a
 6 site visit to the various players over there
 7 in Norway and so we selected to include that
 8 in this research. Nova Scotia, because
 9 they're next door and they're the neighbours
 10 here of the area and the last one we chose to
 11 do, but actually excluded it from our research
 12 once we got into that was that of South
 13 Africa. The reason why we selected that was
 14 we figured that it was a common wealth
 15 country, small, fairly small offshore oil
 16 industry and we were interested to see how
 17 that would compare with the practices here,
 18 but unfortunately there was a lot of
 19 limitations in accessing information and
 20 certainly not enough for us to include that in
 21 the body of work.

22 MS. FAGAN:
 23 Q. Why didn't you include the C-NLOPB, I mean,
 24 you've included the labour, but it's pretty
 25 clear they're not one of the selected regimes

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1 or was that deliberate?
 2 MS. TURNER:
 3 A. Yes, that was deliberate given that the
 4 Inquiry has already heard evidence from the C-
 5 NLOPB and has a good understanding and
 6 appreciation we decided not to include that in
 7 this table-top review and that information was
 8 already available to the Commissioner and we
 9 felt because of that, it would be interesting
 10 to bring that information that maybe wasn't in
 11 this public forum so that it could be compared
 12 and considered.

13 MS. FAGAN:
 14 Q. What was the scope of your research?
 15 MS. TURNER:
 16 A. The scope of the research in the report, the
 17 Table of Contents actually gives a very, very
 18 good overview of the structure, but a couple
 19 of key highlights with each of those six
 20 different regulators from the six different
 21 areas, the scope of the review, we actually
 22 looked at the industry itself, its size,
 23 scope, magnitude, how big the oil industry was
 24 and really tried to get some figures around
 25 the size and scope of the helicopter

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1 operations and the aviations activities that
 2 took place. The second thing that we really
 3 drilled into across all six was looking at the
 4 organizational and oversight structures. So
 5 looking at their organizational structures,
 6 the composition of the board, their safety
 7 organizations and how that was set up. That
 8 then gave us the opportunity to drill into
 9 some of the approaches towards safety
 10 oversight in general and then finally our
 11 fourth area was looking at transportation of
 12 workers using aviation assets, in particular
 13 helicopters and the oversight that takes place
 14 there.

15 MS. FAGAN:
 16 Q. Now before you take us through your report,
 17 what I want you to do is highlight the key
 18 areas of interest and we've already
 19 acknowledged that your focus is on aviation
 20 oversight in helicopter transportation. But I
 21 appreciate we need an overview or a context in
 22 which for you to pass comment on the
 23 helicopter portion, so with all that in mind,
 24 can you go through the key points and we'll go
 25 through each jurisdiction, so I'll like to

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1 start with the United Kingdom and what your
 2 findings were and we all recognize that this
 3 may not be absolutely complete, this is a high
 4 level overview of the key points you found.
 5 MS. TURNER:
 6 A. Sure. Before I start, I must say that in
 7 undertaking this assignment, it's certainly a
 8 very, very interesting task and you can see
 9 how there would be great merit in actually
 10 doing this in an indepth way of actually, you
 11 know, really doing thorough benchmarking,
 12 ranking and comparing, looking at the
 13 structures, having the site visits, the
 14 conversations, et cetera, but I do believe
 15 that this report just provides that snap shot
 16 which is a value and we would have loved to
 17 have drilled even further and got into that,
 18 but in relation to the United Kingdom, we all
 19 recognize that they're a big player in the
 20 offshore oil industry and certainly in the
 21 aviation side. Just to give you a bit of an
 22 overview of the structure, in the UK the HSE
 23 or the Health Safety Executive actually
 24 undertakes workplace safety oversight for all
 25 industries and it was really interesting

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1 following the 1998 Piper Alpha incident and
 2 the public inquiry conducted by Lord Cullen,
 3 there was a bit of a restructure in how the
 4 oversight actually took place. A couple of
 5 the things that came out of that or followed
 6 the inquiry was firstly the establishment of
 7 an offshore division within the HSE that falls
 8 under the hazardous installations directorate
 9 and one of the other key things in the very
 10 late 90's, early 2000 following the Piper
 11 Alpha incident was this shift in the
 12 regulatory approach from a--to a performance
 13 and goal based approach. Now I'm going to
 14 refer to that because right across all
 15 different six jurisdictions there's a bit of a
 16 flavour of a shift towards this performance
 17 and goal based oversight and regulatory model,
 18 but certainly we can see some of the roots
 19 established here in the UK. The UK industry
 20 is very large and there's approximately 300
 21 installations on the continental shelf there.
 22 There's three main helicopter operators,
 23 Bristows, Bond and CHC and there's roughly 100
 24 helicopters that actually service that
 25 industry there, so you can really get an

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1 appreciation as to the size and the scope of
 2 that industry.
 3 On the 1st of April, 2008, the Health and
 4 Safety Commission actually restructured and
 5 it's interesting when you start looking across
 6 all the jurisdictions where there's been a
 7 restructure take place and you can really
 8 track that down in the last five to ten years,
 9 the various jurisdictions have re-examined
 10 their structure, particularly for oversight
 11 and I'll bring out some of those key findings
 12 as I talk through. But I'd just like to read
 13 the mission statement of the safety executive.
 14 It says, "The goal of the mission is to assure
 15 safety management and the effective control of
 16 major accident hazard risks and prevent
 17 catastrophic incidents in offshore oil and the
 18 gas industry." The thing that I really liked
 19 about that mission statement was the use of
 20 the words "to assure safety". In my previous
 21 presentation I talked about safety assurance
 22 and that it is a very defined discipline, so
 23 you can see the philosophy of this assurance
 24 based approach creeping in in the last couple
 25 of years.

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1 One of the other key areas to note with
 2 the UK is they have adopted an approach to
 3 undertake safety cases and there is a
 4 regulation that actually covers the scope of
 5 how that is to take place. There's 27
 6 assessment principles that support that safety
 7 case and when you run through the lists that
 8 are actually documented in our report, if you
 9 just count the ones that mention risk or risk
 10 management, 17 out of the 27 have that risk
 11 management based definition or flavour in
 12 there. In drilling into the helicopter
 13 oversight, when you're talking the oversight
 14 of over 100 aircraft, that's a very large
 15 fleet and you've got a number of operators,
 16 helicopter operators that take place in that
 17 area. One of the key things that we found in
 18 our research was that there is a memorandum of
 19 understanding between the civil aviation
 20 authority and the offshore regulator which
 21 outlines the lines of accountability and
 22 responsibility for aviation activities, and so
 23 really a great tool and something worth
 24 looking at.
 25 In terms of the helicopter activities, it

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1 seems to me through the level of commitment,
 2 resource and activity that takes place that
 3 it's a very proactive approach and there's a
 4 lot of interaction with the industry. One of
 5 the key outputs of that interaction has been
 6 the development, production and distribution
 7 of guidance material on aviation and
 8 helicopter safety standards and practices. So
 9 there's some real tangible resources that have
 10 been produced in the UK jurisdiction around
 11 aviation matters.

12 The Civil Aviation Authority and the
 13 Health Safety Executive actually meet twice a
 14 year and one can only assume that that's to
 15 discuss the various issues associated with the
 16 helicopter operations and there is an advisory
 17 committee which is a helicopter liaison group.
 18 So a couple of really key things that have
 19 come out and that are documented in that
 20 report that are worthy of consideration.

21 MS. FAGAN:
 22 Q. The advisory committee of the helicopter
 23 liaison group, can you give us an indication
 24 of what parties or who would be part of that
 25 group?

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1 MS. TURNER:
 2 A. Yes, sure. From our research and you can very
 3 easily access the minutes of these meetings.
 4 You can see that there's the pilot groups
 5 represented, the aviation companies
 6 themselves, the oil operators, the regulators,
 7 both offshore, oil and petroleum and the
 8 aviation regulator, various special interest
 9 groups, associations and experts there, so
 10 it's fairly balanced in the contribution and
 11 approach.

12 MS. FAGAN:
 13 Q. Do you know if there's any workers or union or
 14 employee representatives, your recollection?

15 MS. TURNER:
 16 A. Yeah, in terms of the research that we went
 17 through, it was very, very balanced and a
 18 cross section. I'd need to validate and
 19 double check whether the unions were
 20 represented but there's a very high percentage
 21 of involvement and publicity around the
 22 findings that come out.

23 MS. FAGAN:
 24 Q. Okay, thank you. What can you tell us about
 25 the structure in the United States?

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1 MS. TURNER:
 2 A. Okay, moving a little bit close to the home,
 3 the United States has an interesting setup,
 4 there's basically three agencies or regulatory
 5 bodies that have some stake in the offshore
 6 oil oversight picture. The main one is the
 7 MMS that I had mentioned before which stands
 8 for the Minerals Management Service. There's
 9 also a very very strong relationship and the
 10 US Coast Guard is the second regulator that
 11 actually has a level of oversight and
 12 responsibility in that area, and the last one
 13 is the occupational health and safety
 14 administration. Now it's interesting that we
 15 have included a table in our research paper
 16 which runs through all the functional areas
 17 and who actually has the oversight split,
 18 that's quite a useful document, but in essence
 19 the MMS controls the production, licensing,
 20 resourcing et cetera, the US Coast Guard looks
 21 at--sorry, and the facilities, the US Coat
 22 Guard looks at the marine related activities
 23 and the occupational health and safety
 24 administration looks at workplace, safety and
 25 inspections. It's interesting when you start

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1 looking at exactly who inspects what and who
 2 uses what. It does look like there's some
 3 overlap or integration where some standards
 4 from one agency may be used and audited by
 5 another and that is actually defined in our
 6 report.

7 MS. FAGAN:
 8 Q. The scope of the industry, now are we speaking
 9 Gulf of Mexico or are we in other areas? Is
 10 this just the Gulf or are there other -

11 MS. TURNER:
 12 A. Yes, sure. Our review of the United States
 13 actually covered all of the--the whole
 14 jurisdiction which extends all the way up to
 15 Alaska, but a lot of the information was
 16 focused around the Gulf of Mexico and when you
 17 start looking at the scope and size, you can
 18 appreciate exactly why. There's approximately
 19 6,000 oil and gas installations and in terms
 20 of helidecks, there's over 4,000 and so you
 21 can just, you know, through those numbers get
 22 an appreciation of how large the scope is in a
 23 fairly small geographical area. In terms of
 24 aviation operators, there's a number of big
 25 helicopter operators similar to the UK, but in

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1 the US you've also got the smattering of
 2 smaller helicopter operators that ferry VIPs
 3 and specialists, et cetera, backward and
 4 forwards, so you've really got the big end of
 5 aviation with the PHI's or Petroleum
 6 Helicopter International, all the way through
 7 to small helicopter organizations that just
 8 fly a handful of aircraft.

9 MS. FAGAN:
 10 Q. Who would inspect the helidecks when you talk
 11 about the division, this 4,000--there's 6,000
 12 installations, what I'm hearing is they would
 13 come under the Minerals Management Service.

14 MS. TURNER:
 15 A. Yes.

16 MS. FAGAN:
 17 Q. The installation itself.

18 MS. TURNER:
 19 A. Yes.

20 MS. FAGAN:
 21 Q. The helideck, the 4,000 helidecks, how would
 22 that work in the division of power, I suppose.

23 MS. TURNER:
 24 A. Now it's very interesting when you talk about
 25 the division of power, I haven't mentioned the

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1 FAA yet and the FAA is equivalent to Transport
 2 Canada and is the aviation regulator. Now
 3 these helidecks are actually considered
 4 private heliports, so they don't necessarily
 5 come under the inspection regime of the FAA,
 6 however, the FAA does have an advisory
 7 circular which is guidance material for
 8 helidecks, heliports, landing pads, et cetera
 9 and as you mentioned, the MMS has that
 10 oversight and conducts those inspections.

11 MS. FAGAN:
 12 Q. Now has there been any changes or
 13 restructuring in the United States? You've
 14 mentioned after Lord Cullen's inquiry there
 15 was some shifts in the UK and then again in
 16 April of 2008, the Board of Health and Safety
 17 Commission was restructured, so the UK has had
 18 some restructuring in the last ten years. Has
 19 there been anything in the United States
 20 that's noteworthy?

21 MS. TURNER:
 22 A. Yes, sure. Obviously the biggest thing that
 23 is on all of our minds is the recent BP
 24 incident and the deep water horizon incident
 25 of April this year. It's probably too early

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1 to tell in terms of the formal structural--
 2 sorry, formal structure and any changes there;
 3 however, from a philosophical perspective
 4 there's been very, very clear directive that
 5 there will be a separation of the commercial
 6 and the production areas and then the safety
 7 standards and oversight and have that
 8 separation of functions. When we start
 9 looking into the safety oversight and what is
 10 currently in place, a couple of key highlights
 11 that we've put in our report is each operation
 12 is to have a production plan which is similar
 13 to the safety case or the safety plans.
 14 Currently as it stands there's a voluntary
 15 safety environmental management system or an
 16 SEMS.

17 MS. FAGAN:
 18 Q. So is that similar to a SMS?

19 MS. TURNER:
 20 A. Yeah, it's similar to a SMS which is a safety
 21 management system, but the scope covers the
 22 environment as well. Now there was moves to
 23 actually bring that into become compulsory and
 24 there's proposed rule making already in place
 25 for that. I have no doubts that that will be

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1 accelerated and possibly we might even see a
 2 separation of the safety management system and
 3 the environmental management system, given the
 4 outcoming consequence of the current incident
 5 down there.

6 MS. FAGAN:
 7 Q. You had mentioned the FAA and when you
 8 discussed the UK, you had said that there were
 9 committees and a MOU, an interaction with the
 10 Civil Aviation Authority. The Civil Aviation
 11 Authority would be, in the UK, would be the
 12 equivalent of the FAA?

13 MS. TURNER:
 14 A. That's correct.

15 MS. FAGAN:
 16 Q. In all different countries, they all have
 17 their own terminology. Did you find any
 18 interaction with the FAA or any involvement
 19 between the FAA and the oil regulators or the
 20 petroleum industry?

21 MS. TURNER:
 22 A. Sure, sure. The FAA, as I mentioned before,
 23 is the aviation regulator. One of their
 24 primary tasks is to issue air operating
 25 certificates or an AOC. Now that is the same

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1 case as in every jurisdiction and they do that
 2 under ICAO's delegation as such. So the FAA
 3 actually registers and licenses the helicopter
 4 operators, but its span of oversight and
 5 inspection is limited in that aspect. In
 6 terms of their interaction, there is a group
 7 called the HSAC or the Helicopter Safety
 8 Advisory Committee and that has a very large
 9 emphasis on the offshore oil petroleum
 10 industry. They meet a couple of times a year
 11 and I have been fortunate to attend some of
 12 those public meetings, most recently in
 13 Dallas, Fort Worth in Texas and the HSAC is
 14 actually broader than offshore oil, but it's
 15 got a heavy emphasis with the, again,
 16 representation from the helicopter companies,
 17 the regulators, the oil industry, the customer
 18 base, et cetera.
 19 MS. FAGAN:
 20 Q. So just for clarification, we heard evidence
 21 that Transport Canada in Canada, of course,
 22 issues the air operators certificate and
 23 regulates the helicopter operator.
 24 MS. TURNER:
 25 A. Yes.

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1 MS. FAGAN:
 2 Q. You know, the company that operates the
 3 helicopter and that's the situation here.
 4 MS. TURNER:
 5 A. Yes.
 6 MS. FAGAN:
 7 Q. So the FAA, it's a similar situation, when you
 8 had said across all jurisdictions, the air
 9 operator's certificate, do you mean all of the
 10 ones that you reviewed all have a similar
 11 structure because they're part of the
 12 international organization?
 13 MS. TURNER:
 14 A. Yes, how it actually works is ICAO which is
 15 the International Civil Aviation Organization
 16 is the international body, then there are
 17 member states that actually subscribe to the
 18 conventions of ICAO, those member states then
 19 have the regulator, so in the case of Canada,
 20 Transport Canada is a member state through
 21 ICAO and the associated conventions, the FAA
 22 in the US is the member state, in Australia,
 23 the Civil Aviation Safety Authority or CASA,
 24 so that structure is in place for all member
 25 states. Those regulators have the same set up

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1 and system of issuing air operating
 2 certificates and having to set regulations for
 3 aviation activities.
 4 Now one of the key things that is
 5 consistent across the aviation regulators of
 6 the jurisdictions is the regulator is to set
 7 regulations and standards, they are to conduct
 8 surveillance which is where their audit and
 9 inspection regime comes in, and they are to
 10 undertake some level of enforcement or to
 11 ensure compliance with those regulations, and
 12 so there's various scales and continuum of
 13 what enforcement activities take place there
 14 as well. So the surveillance and the
 15 intervention, enforcement being one of them,
 16 is actually the same structure around the
 17 world for aviation regulators.
 18 MS. FAGAN:
 19 Q. So this would include Norway.
 20 MS. TURNER:
 21 A. Uh-hm.
 22 MS. FAGAN:
 23 Q. Because you've already covered the UK, the
 24 United States.
 25 MS. TURNER:

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1 A. Correct.
 2 MS. FAGAN:
 3 Q. You said CASA.
 4 MS. TURNER:
 5 A. Yes.
 6 MS. FAGAN:
 7 Q. In Australia, and Nova Scotia, of course, is
 8 Canada.
 9 MS. TURNER:
 10 A. Uh-hm.
 11 MS. FAGAN:
 12 Q. Or Norway is another member state?
 13 MS. TURNER:
 14 A. Yes.
 15 MS. FAGAN:
 16 Q. We're not going to deal with South Africa, in
 17 any event. So this structure that you've laid
 18 out would apply to all of the jurisdictions
 19 that you've reviewed?
 20 MS. TURNER:
 21 A. Yes.
 22 MS. FAGAN:
 23 Q. So they would be the primary when it comes to
 24 regulation and oversight of aviation?
 25 MS. TURNER:

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1 A. That's correct.

2 MS. FAGAN:

3 Q. So this report focuses on the interaction or

4 the aviation component in an industry - the

5 petroleum industry where it's not its core?

6 MS. TURNER:

7 A. Yeah, that's right. Now just on the US and

8 some of the activities, now that intervention

9 regime that I've talked about before, the

10 regulator can adopt to use enforcement

11 activities, such as notices, non-compliance

12 notices, inspections, etc, but there has been

13 a move in the last 10 or 15 years for where

14 there's a hot spot or an area of a high risk

15 profile for the regulator to actually

16 undertake different types of activities to try

17 and address the issue, and a good example of

18 this is in the United States recently with the

19 helicopter medical industry, so the air

20 ambulances, that was a sector, an industry

21 sector that had a higher accident profile.

22 Of course, the regulator was looking at

23 more defined regulation, etc, but there was

24 also a very, very high level of industry

25 interaction, representation from the FAA

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1 industry conferences, focus groups, meetings,

2 discussions, etc, and the offshore oil

3 industry does have that same level of

4 involvement and attention, but it's more ad

5 hoc, as opposed to the HSAC, which is more of

6 a structured committee and safety activity

7 that takes place regularly.

8 MS. FAGAN:

9 Q. Okay, thank you. The next country is

10 Australia, so your home country. I guess

11 you're very familiar with this - with the

12 aviation world.

13 MS. TURNER:

14 A. That's right.

15 MS. FAGAN:

16 Q. What did you learn of the petroleum world?

17 MS. TURNER:

18 A. Now it's certainly interesting coming from an

19 aviation perspective and seeing what changes

20 in growth is happening in Australia with the

21 offshore petroleum industry, and I'll talk

22 about that in a little bit.

23 I must say prior to involvement in this

24 Inquiry, and in particular this assignment, I

25 wasn't too familiar with NOPSA, which is the

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1 National Offshore Safety Petroleum Agency, but

2 it's been interesting actually looking at the

3 practises there and understanding why things

4 have taken shape in the way that they have.

5 One of the interesting things to note was

6 in 2005 a national oversight entity, and I've

7 used the acronym, NOPSA, was established and

8 prior to that each state and territory that

9 actually had oil and gas activity actually had

10 their own oversight regime, so very much a

11 stake-based approach. This national oversight

12 entity is predominantly focused on safety and

13 you can see that through examining their

14 organizational chart and their charter, so to

15 speak. When you read into the history of how

16 that actually came about, there's comments

17 that the findings out of the UK Piper Alpha

18 accident and the Public Inquiry actually

19 really led to an examination around the

20 structure in Australia and had quite a lot of

21 influence around setting up that national

22 oversight entity.

23 The division of power really was seen to

24 bolster up the focus on safety, and it is a

25 safety authority or a safety regulator. In

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1 terms of the scope of the industry, I thought

2 originally it was actually quite small and,

3 you know, a few of the different pockets of

4 different oil fields, but there's actually 166

5 installations in Australia. There's a number

6 of helicopter operators which include Bristow

7 Helicopters, CHC, Jayrow, and Esso, which is

8 one of the oil operators actually has their

9 own aviation fleet. So you will see, you

10 know, commonality of some of the larger

11 operators operating in different jurisdictions

12 around the world.

13 MS. FAGAN:

14 Q. The scope of this industry, is this on the

15 upswing or the downswing?

16 MS. TURNER:

17 A. Now my understanding and knowledge of the

18 changes, the forecast changes that are

19 expected to happen in the next year or two, is

20 significant growth in this area, and from a

21 aviation perspective in working with CASA, the

22 aviation regulator, it's very much on the

23 radar as one of those spike sectors that is

24 about to undergo dramatic growth to the point

25 where they're anticipating anywhere from 30 to

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1 50 more helicopters in that area in the next
 2 one to two years.
 3 The interesting thing about that is the
 4 aviation regulator is keeping tabs on the
 5 changing industry profile that's taking place
 6 and last year in 2009, late 2009, a MOU,
 7 Memorandum of Understanding was set up between
 8 NOPSA and the civil aviation safety authority
 9 to again define these roles, relationships,
 10 and accountabilities. I believe that that's
 11 really in anticipation for the growth that's
 12 expected over the coming years.
 13 MS. FAGAN:
 14 Q. Do the Australia regulator, do they have a
 15 safety case type approach because we've heard
 16 the safety plan, the safety case, and a
 17 production plan.
 18 MS. TURNER:
 19 A. Yeah.
 20 MS. FAGAN:
 21 Q. So how is it structured in Australia?
 22 MS. TURNER:
 23 A. Yeah. With the establishment of NOPSA, from
 24 day one the underpinning philosophy was very
 25 much risk based. There is some strong

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1 expectations and standards around safety case,
 2 so, yes, that is expected. They do also
 3 espouse that they have a performance or an
 4 outcome-based safety regime and that may be an
 5 area worth delving into if people are
 6 interested of what is the difference between a
 7 compliance or a prescriptive-based regime and
 8 performance and outcome-based because again
 9 Australia has shifted towards that oversight
 10 aspect.
 11 MS. FAGAN:
 12 Q. On the oversight, did you notice anything
 13 interesting in their audit process?
 14 MS. TURNER:
 15 A. Yeah, I mentioned a term "assurance" before
 16 and safety assurance is a real emerging area.
 17 In Australia, it's interesting when you look
 18 at the way the audit regime is structured.
 19 Basically, they've got two different
 20 audit approaches. One is planned inspections
 21 or field audits which is very much compliance-
 22 based with the regulation, and the other,
 23 which is probably the most interesting, are
 24 theme-based audits that take place at an
 25 organizational level. So really looking at

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1 the organizational or systemic issues and
 2 those theme-based audits take place there.
 3 MS. FAGAN:
 4 Q. So what would be the difference? I mean, the
 5 planned inspection of audit, would that cover
 6 the entire system or does it not? I mean,
 7 what's the difference?
 8 MS. TURNER:
 9 A. Yeah, it's interesting when you start looking
 10 at - your compliance-based audits or
 11 inspections are very much looking at a rule or
 12 a regulation and determining whether the
 13 organization is compliant or non-compliant,
 14 whereas a theme or an organizational-based
 15 audit is more looking at the structures, the
 16 frameworks, the systems, the accountability,
 17 and whether or not it's suitable.
 18 Now in the field of audit and risk based
 19 auditing, you've got compliance-based audit,
 20 and then you have risk-based audit, which is
 21 more like an evaluation and a grading and a
 22 synopsis of how effective something is as
 23 opposed to a "yes" or "no" answer, and so the
 24 approach to the whole audit setup is
 25 reflective of that concept.

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1 MS. FAGAN:
 2 Q. We have heard about the United States is
 3 looking at a safety management and environment
 4 system.
 5 MS. TURNER:
 6 A. Uh-hm.
 7 MS. FAGAN:
 8 Q. It has the environment in there. What is the
 9 status of safety management systems in
 10 Australia?
 11 MS. TURNER:
 12 A. There is a mandated requirement for all
 13 activities to come under a safety management
 14 system within Australia, and it's a little bit
 15 broader than just a pure safety case or a
 16 safety plan. It really is looking at the
 17 organizational structures and systems that are
 18 in place to manage that safety risk exposure,
 19 and it's fair to say that Australia does have
 20 a level of expertise in safety management
 21 system and probably started a number of years
 22 before, you know, other countries around the
 23 world and does have a vent in that area.
 24 MS. FAGAN:
 25 Q. The MOU is one area where the civil aviation

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1 authority interacts with the petroleum
 2 authority.
 3 MS. TURNER:
 4 A. Uh-hm.
 5 MS. FAGAN:
 6 Q. Did you see any other evidence or did you find
 7 anything else with respect to aviation or
 8 interaction? We've heard about committees.
 9 MS. TURNER:
 10 A. Uh-hm.
 11 MS. FAGAN:
 12 Q. Anything else you can comment on?
 13 MS. TURNER:
 14 A. Yes, sure. One of the other things, NOPSA has
 15 periodically engaged aviation expertise and
 16 consultants to undertake various reviews, and
 17 I found that that was quite interesting given
 18 that they don't hold the aviation expertise in
 19 house or internally. So you can see that
 20 they've taken the approach of getting their
 21 own independent aviation advice as well as
 22 connecting with the regulator as such.
 23 I don't have visibility, given the size,
 24 the current size of the aviation industry, as
 25 to whether there's forums and connectivity in

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1 the same way that the HSAC or the UK take
 2 place, but I'm sure that that will grow over
 3 time. I am aware, though, through the old
 4 Helicopter Association of Australia and the
 5 various conferences, aviation conferences that
 6 take place every two years, that there's a
 7 subset that really tackles the offshore oil
 8 flying activities, etc, but it's not big
 9 enough to have its own committee at this
 10 stage.
 11 MS. FAGAN:
 12 Q. The next jurisdiction is Norway, okay, and
 13 they are, we've heard, a very - from others,
 14 that it's a mature petroleum industry. So can
 15 you first give us the structure and the scope,
 16 the size?
 17 MS. TURNER:
 18 A. Yes, sure. It's interesting in Norway, and
 19 Commissioner, I understand that you've visited
 20 and met with the people there, it's
 21 interesting in terms of the scope and the size
 22 of the industry itself. Some interesting
 23 stats, 34 percent of the nation's income is
 24 actually derived from this industry, and that
 25 was stats from 2008. So obviously a very high

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1 profile industry in terms of the national
 2 interest. There's 57 oil and gas fields, 73
 3 permanent installations comprised of 2862
 4 wells. So again a fairly comprehensive
 5 industry for a pretty small country.
 6 The oversight for regulation takes place
 7 by the PSA, or the Petroleum Safety Agency,
 8 and this is an independent agency that again
 9 undertook some level of restructure and
 10 separation from other government departments
 11 and agencies in 2004.
 12 MS. FAGAN:
 13 Q. Now what do you mean by an independent agency,
 14 and you've mentioned restructuring - we've
 15 heard of some restructuring in the UK.
 16 MS. TURNER:
 17 A. Yeah.
 18 MS. FAGAN:
 19 Q. And you've heard - we're hearing on the news
 20 of a potential restructuring in the United
 21 States. Can you describe -- and you've just
 22 described Australia.
 23 MS. TURNER:
 24 A. Yes.
 25 MS. FAGAN:

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1 Q. So now Norway's restructuring?
 2 MS. TURNER:
 3 A. Yes, sure. It's interesting in the reading
 4 and the research, this change happened in
 5 early 2000's, 2004. The PSA is profiled as an
 6 independent safety agency as opposed to where
 7 the commercial activities take place for
 8 production, royalties, etc. One of the things
 9 that became very apparent in the research was
 10 a very slow, yet progressive, shift towards
 11 this performance-based oversight that's really
 12 been in training for about the last 15 plus
 13 years, and so each time the regulations are
 14 updated, there is a maturity built into that
 15 practise, and they're expecting their
 16 regulations to be updated and re-released next
 17 year in 2011, and again with another shift
 18 towards a greater level of focus on risk
 19 management.
 20 MS. FAGAN:
 21 Q. What about the transportation of workers to
 22 and from the installation, is there any
 23 regulation to cover that because you've said
 24 they are part of the international
 25 organization.

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1 MS. TURNER:
 2 A. Yes.
 3 MS. FAGAN:
 4 Q. So they have their civil authority.
 5 MS. TURNER:
 6 A. Uh-hm.
 7 MS. FAGAN:
 8 Q. What about the regulator in Norway?
 9 MS. TURNER:
 10 A. Yeah, one of the things that really jumped out
 11 in the research were the regulations for
 12 Norway from the petroleum side actually did
 13 provide a level of detail and requirements
 14 that were specific about covering the
 15 transportation of workers to and from the
 16 installation, and so that was one of the
 17 things that was a little bit different or not
 18 as obvious in the other jurisdictions, not to
 19 say that it's not there, but certainly in
 20 Norway that jumped out as one of those key
 21 focal points or observations.
 22 MS. FAGAN:
 23 Q. How do they approach safety and assurance?
 24 MS. TURNER:
 25 A. Yeah, as I mentioned before, this thing about

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1 safety assurance is really developed. Norway
 2 have taken a fairly innovative approach to
 3 their checking function, and in particular
 4 their enforcement. They have this concept
 5 called a stepped enforcement regime, and it's
 6 like a picture of stairs and where there's an
 7 issue identified, the very, very first step is
 8 to actually engage with the industry in
 9 dialogue.
 10 So you can see that in their philosophy
 11 it really is about having the conversation
 12 first, having that consultation and dialogue
 13 before it's escalated to, you know, the full
 14 extent of penalties and the other spectrum of
 15 enforcement. So that stepped enforcement
 16 regime is fairly key. It does show a bit of a
 17 shift in the philosophy, and one of the other
 18 things in terms of the consultation, it seems
 19 that Norway has a very transparent approach.
 20 When you look at their website, there are
 21 results from audits, there is a lot of
 22 material, and so it seems very public and very
 23 open and transparent, which makes sense. If
 24 34 percent of your nation's income is derived
 25 from that sector, I think there would be a

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1 high level of interest in that industry.
 2 MS. FAGAN:
 3 Q. The helicopter involvement, what is on the
 4 scene with respect to helicopter
 5 transportation?
 6 MS. TURNER:
 7 A. Yes, sure. The biggest thing that jumped out
 8 from an aviation perspective was over the last
 9 10, or just over 10 years, Norway has
 10 committed to some fairly comprehensive
 11 helicopter safety studies. They've done three
 12 of those reports, not all of them fully
 13 translated in English, but the first two were
 14 actually commissioned by the Government and
 15 really did explore the hazards, risks, and
 16 safety issues associated with offshore flying.
 17 It's interesting, the third study was
 18 actually commissioned by a group of eight oil
 19 companies. So again you can see a little bit
 20 of a shift from regulatory government flavour
 21 through to engagement, transparency,
 22 consultation through to the oil operators
 23 themselves commissioning that last and third
 24 study which has just come out recently. In
 25 terms of interaction, again very similar to

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1 the UK approach in terms of interaction with
 2 the industry itself, and they have a
 3 helicopter safety committee and a forum which
 4 includes a range of different players,
 5 including the workers, the unions, and most
 6 interestingly, air traffic control. So really
 7 looking at that setup again, slightly
 8 different approach that fits the context of
 9 their setup there.
 10 MS. FAGAN:
 11 Q. So beyond the unions and air traffic control,
 12 what about the oil operators and the aviation
 13 people?
 14 MS. TURNER:
 15 A. Yeah, absolutely. Pilots, aviation operators,
 16 oil operators, and the regulators, all
 17 represented there as well.
 18 MS. FAGAN:
 19 Q. So is the PSA, when you say the regulator, the
 20 oil regulator is also part of the committee?
 21 MS. TURNER:
 22 A. That's correct.
 23 MS. FAGAN:
 24 Q. And the last jurisdiction is Nova Scotia.
 25 MS. TURNER:

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1 A. Sure. Nova Scotia, as many of you know, has
 2 the oversight body of the C-NSOPB, that has
 3 about 35 staff and was established in 1990.
 4 So, you know, fairly recent, but certainly
 5 growing and developing. There's two
 6 helicopters operators, CHC, and Cougar
 7 Helicopters, that provide support to the
 8 industry in Nova Scotia, and it's interesting
 9 when you start looking at the regulatory
 10 approach, there's a strong theme around hazard
 11 management and a hazard-based approach. It is
 12 quite consistent with other jurisdictions and
 13 there is also certainly a communication that
 14 there's a performance-based oversight regime
 15 there in place as well.

16 MS. FAGAN:
 17 Q. How about the safety plan, safety case,
 18 production plan, do they have that similar -

19 MS. TURNER:
 20 A. Yes, sure. From our research we found that
 21 there was draft guidelines put in place for
 22 safety plans that was released in December
 23 last year, 2009, and again you can see fairly
 24 consistent theme and approach, as you say,
 25 safety cases, safety plans, production plans,

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1 safety management systems. They all have a
 2 similar intent, some of them more indepth than
 3 others.

4 MS. FAGAN:
 5 Q. The helicopter operations, can you explain the
 6 oversight there?

7 MS. TURNER:
 8 A. Yeah, one of the interesting things that
 9 actually came out in this research was in
 10 terms of helicopter operations oversight, the
 11 definition of the use of support craft, and
 12 the helicopters actually fall under that
 13 definition and on page 51 of our report, we've
 14 just included two points that I'll just read
 15 out for us that actually provide an overview
 16 of that scope of the support craft and the
 17 definition of what it covers.
 18 So helicopters used to transport workers
 19 to and from offshore oil installations are
 20 included within the term "support craft".
 21 Furthermore, the duty of the operator is to
 22 ensure that; number one, any operation
 23 necessary for the safety of persons on a
 24 support craft has priority at all times over
 25 any work or activity, and, number two; all

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1 persons in transit to and from an installation
 2 receive instruction in and are familiar with
 3 safety and evacuation procedures including
 4 emergency response procedures.
 5 So that was something that came out that
 6 was of interest in the research and I thought
 7 was fairly sound.

8 MS. FAGAN:
 9 Q. So you have mentioned that the PSA, the
 10 Petroleum Safety Agency in Norway, does - its
 11 regulations does cover - although they have
 12 the civil aviation, their regulations do cover
 13 the helicopter transportation. How would you
 14 categorize the Nova Scotia regulations, having
 15 just read that section? Is that the same as
 16 what you saw in Norway, or are these two
 17 different things?

18 MS. TURNER:
 19 A. Yes, sure. In terms of our research, I mean,
 20 that's just a definition extracted from one of
 21 the regulations, but in our bibliography you
 22 can see the scope of what we looked at, and as
 23 I mentioned before, I'd love to go into this
 24 in more detail to really draw out some of
 25 those parallels that you're talking about. I

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1 think that Norway is probably a little bit
 2 ahead of the curve in terms of their history
 3 and maturity, but again some really good
 4 things that can be taken away and embedded in
 5 the philosophical approach as to how you
 6 actually drive regulations.

7 MS. FAGAN:
 8 Q. Are there any changes expected that you're
 9 aware of with respect to the Nova Scotia
 10 regulations, because you've told us you expect
 11 some shifts -

12 MS. TURNER:
 13 A. Yes.

14 MS. FAGAN:
 15 Q. Either they've happened in the other
 16 jurisdictions or they're likely to happen.
 17 Anything on the horizon on the Nova Scotia
 18 jurisdiction?

19 MS. TURNER:
 20 A. Yeah, the biggest thing in the Nova Scotia
 21 jurisdiction is the expected review and
 22 amendment in the Occupational Health and
 23 Safety Regulations, and it will be interesting
 24 to see, you know, what relationships are drawn
 25 with the offshore oil regulations, the

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1 aviation regulations, and the occupational
 2 health and safety, and that approach is fairly
 3 consistent with other jurisdictions. So no
 4 surprises there.

5 MS. FAGAN:
 6 Q. I will just ask you to provide, in conclusion,
 7 a synopsis. I know it's difficult to draw
 8 parallels.

9 MS. TURNER:
 10 A. Yes.

11 MS. FAGAN:
 12 Q. Without perhaps a much, much greater depth;
 13 however, with this oversight, were there any
 14 themes - was there anything that you could see
 15 as sort of patterns that we can draw upon?

16 MS. TURNER:
 17 A. Yeah, sure, and I'm sure many of these themes
 18 and patterns have just come out or people are
 19 twigging with that just as I've been talking,
 20 and a couple of the trends that are across
 21 most, if not all, is firstly the division of
 22 power, or the separation of power from safety
 23 and then the commercial and production side of
 24 things, and that is not unusual for a
 25 regulator that has a safety oversight function

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1 to really examine where safety sits.
 2 I'll just draw on an example from
 3 Australia, that the Australian aviation
 4 regulator used to be called the CAA, or Civil
 5 Aviation Authority, and a number of years ago
 6 the Director at the time decided to change the
 7 name to be the Civil Aviation Safety
 8 Authority, and so you can see this emphasis in
 9 the separation of safety in many areas around
 10 the world.

11 The second one, and this is probably of
 12 greater importance, is the shift to
 13 performance-based regulation and oversight.
 14 Now I've talked about performance-based, we've
 15 talked about goal-based, we've talked about
 16 outcome-based. Basically, in a nutshell, what
 17 it is is rather than writing a rule or a
 18 regulation that could cover every particular
 19 scenario or case in an industry, the aim of
 20 performance-based regulation is to say this is
 21 the outcome that we wish for you to achieve;
 22 how you achieve it is up to you, we won't be
 23 prescriptive in telling you exactly how, but
 24 it's up to you to have an appropriate
 25 framework system process/procedure to achieve

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1 that outcome. So the performance-based
 2 regulation is about being prescriptive on the
 3 outcome as opposed to the way and how you
 4 achieve it. So that's what I find is the most
 5 simplistic way of defining that.

6 Even here in Transport Canada, the rail
 7 component of transport is trying to move from
 8 a compliance-based prescriptive regulatory
 9 regime where there's a lot of regulations that
 10 are very, very detailed, and inspectors go out
 11 and check compliance, through to this
 12 performance-based outcome based approach. So
 13 that's a pretty big theme and something that
 14 has come out in this research.

15 The next is this move to a risk-based
 16 approach, and the risk management discipline,
 17 I mean, this is my bread and butter and more
 18 core area of expertise. It really is a
 19 growing field and you can see risk management,
 20 the management of risk, the identification,
 21 assessment, and reduction of hazards and risks
 22 and consequences is a flavour that's being
 23 written into not just regulation, but also
 24 legislation and standards and guidance
 25 material, and there is a discipline, an art,

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1 and a science around how you achieve a good
 2 level of risk management in those
 3 applications. So this risk-based approach
 4 compliments the performance or outcome-based
 5 regulatory regime. You actually need a risk
 6 management process or system to achieve a
 7 performance-based outcome.

8 One of the key things, being a bit more
 9 focused now on aviation, is the interaction
 10 with the aviation community and how the
 11 various jurisdictions actually tackle that.
 12 Some of the structured memorandums of
 13 understanding that define the relationships.
 14 Others commit to formal forums or committees
 15 and dialogue with the operators. Some have
 16 retained aviation expertise, some have
 17 aviation expertise on their organizational
 18 structure. So I guess there's a number of
 19 different things that can be learned from that
 20 aspect.

21 The next theme, and I've touched on this
 22 and emphasized it a couple of times, is around
 23 safety assurance, and adopting an innovative
 24 approach to providing confidence that things
 25 are safe. So basically what assurance is, is

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1 the provision of confidence. Confidence to
 2 whom; confidence to the regulator, to the
 3 workers, to the community, to the operators
 4 themselves. How do you provide confidence;
 5 well, we do a lot of audits and inspections in
 6 these type of industries, and that's one way
 7 to do the checking or to provide confidence.
 8 What we're seeing is a shift which is
 9 complimentary of the performance-based and
 10 risk-based into safety assurance, which
 11 broadens the tools and methods of how you
 12 achieve that communication of confidence into
 13 things beyond just audit.
 14 Then the final one that is pretty common
 15 across the board is level of consultation that
 16 needs to take place or that does take place.
 17 MS. FAGAN:
 18 Q. Consultation between who?
 19 MS. TURNER:
 20 A. Really the oil industry, the aviation
 21 industry, the regulators, the operators, and
 22 all the interested stakeholders in those
 23 groups, including the workers, the unions, the
 24 associations, and subject matter experts in
 25 the various technical fields.

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1 MS. FAGAN:
 2 Q. Did you see any practises or approaches that
 3 weren't right across the board, but something
 4 that might be a little innovative that we may
 5 want to think about or look at more closely?
 6 MS. TURNER:
 7 A. Yes, certainly. The one that comes out of
 8 Norway that really stood out was their stepped
 9 approach to their enforcement and really
 10 focusing on having some structured processes
 11 around having the dialogue before things
 12 escalated into the, I guess, traditional
 13 regulatory compliance based area and also
 14 secondly, their level of transparency.
 15 Everything's public. Everything's available.
 16 Certainly, you know, it doesn't seem like
 17 there's need for freedom of information
 18 requests and things like that. It's just
 19 available for people to read.
 20 MS. FAGAN:
 21 Q. There may be those requests?
 22 MS. TURNER:
 23 A. Yeah, absolutely, and I'm sure there's a depth
 24 of notes and, you know, more in-depth work
 25 that sits behind, but certainly there's a lot

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1 that's available and it is very open.
 2 A couple of things from Australia is
 3 definitely the safety management system and
 4 taking that broader approach and not just
 5 necessarily a safety case or a safety plan.
 6 The audits that pick up that organizational
 7 type themed audits and with the restructure,
 8 probably the national approach to safety
 9 oversight, as opposed to, you know, the state-
 10 based administrative function that took place
 11 and that's really allowed safety to be
 12 bolstered up in that, which has been great.
 13 And then, in terms of the UK, probably
 14 the most influential thing that really does
 15 have a place in aviation safety is the
 16 production of the written guidance material on
 17 aviation safety and helicopter activities is a
 18 stand out there.
 19 MS. FAGAN:
 20 Q. Okay, thank you. Well, that's all I have to
 21 ask you on this report, and we're not going to
 22 break until one, correct?
 23 COMMISSIONER:
 24 Q. Yes.
 25 MS. FAGAN:

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1 Q. So we can move right on to the third and final
 2 report and all the counsel are taking lots of
 3 notes, so we're dealing with the three reports
 4 upfront and then they'll have the opportunity
 5 to delve into each one of the reports. So
 6 your last report is a safety culture report.
 7 A lot of times this is referred to something
 8 that's fairly theoretical, so we will try and
 9 keep it to a -- we need to understand the
 10 theory, but some practical examples or
 11 applications will be helpful. So this paper
 12 on organizational safety culture, the purpose
 13 of this work was to highlight to the Inquiry
 14 key practices and concepts that are accepted
 15 and widely applied in the aviation industry.
 16 So can you tell us how we could best use this
 17 information? And you've prepared the report.
 18 How do you think it may help the Inquiry?
 19 MS. TURNER:
 20 A. Yes, sure. A couple of points to note in
 21 terms of safety culture, be that
 22 organizational culture or safety culture, this
 23 is a very defined discipline, particularly in
 24 the aviation industry. Culture and culture
 25 theory really emerged about 20 to 30 years ago

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1 and is quite embedded into the safety
 2 practices and hence why I'm so familiar with
 3 these areas and have assisted our client base
 4 over the years in implementing some real
 5 practical programs and systems. Like many
 6 other what we call high reliability
 7 organizations or industries which are high
 8 risk, low chance of things going wrong, but if
 9 they do, catastrophic. Such as the petroleum
 10 industry, the nuclear industry, the
 11 petrochemical industry, the aviation industry,
 12 there's a low chance of things going wrong,
 13 but if they do, the outcome, as we've seen
 14 down in the Gulf of Mexico, can be
 15 catastrophic, be that to safety, people,
 16 environment, reputation or even funding and
 17 finance.
 18 Why this is important is these
 19 industries, higher liability organizations,
 20 since their very inception have been driven to
 21 reduce risk and to minimize risk and so when
 22 we're trying to establish cultures that
 23 encourage behaviours that actively reduce
 24 risk, there's a bit of an art to that.
 25 There's many interfaces within aviation

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1 safety that have a cultural perspective and
 2 one of the models, called the shell model, and
 3 not as in Shell Oil, but as in shell, is it
 4 looks at the systems between liveware, the
 5 people, the interaction between people and
 6 people, liveware and liveware, people and the
 7 environment, people and the hardware, people
 8 and software, and so that whole interface
 9 really is quite -- it's quite an ecosystem to
 10 really get functioning to a high degree or
 11 reliability and hence, the culture and the
 12 people aspects are really key.
 13 When you hear safety culture, in
 14 particular, being talked about at conferences
 15 or papers or experts, there's one very, very
 16 simplistic view that gets espoused all the
 17 time and in one way, I like it, and in others,
 18 I absolutely despise and hate it, and it says
 19 how do you define safety culture, and the
 20 simplistic way of looking at it is the way
 21 things are done around here. So how do you
 22 actually describe your culture, the way things
 23 are done around here. Now I think that really
 24 does have merit because it demonstrates the
 25 behaviours, the thoughts, the processes, the

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1 decisions of how people interact and behave.
 2 Now that's a simplistic view. When you
 3 actually look behind why people do things the
 4 way they do, there's a whole set up of
 5 beliefs, values, systems, rules, structures,
 6 expectations, behaviours and decision making
 7 that all influence the way things are done
 8 around here. So the purpose of this paper was
 9 to provide, again, a high level synopsis and
 10 summary of a discipline that's been very, very
 11 high profile in the aviation industry for the
 12 last 20 or 30 years, in 36 pages, so that
 13 those key concepts and models could be
 14 understood and possibly matched with those
 15 good practices that we've seen in other
 16 regulatory jurisdictions and possibly the
 17 results of the survey itself.
 18 Now I must say that there's one
 19 exclusion. We have not conducted a safety
 20 cultural analysis or assessment of the
 21 offshore oil industry here in the area, but
 22 the work that has been done could be used as a
 23 foundation to some of that further work.
 24 MS. FAGAN:
 25 Q. The report, can you take us through some of

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1 the main points in the report? It's 36 pages.
 2 We're not going to read 36 pages.
 3 MS. TURNER:
 4 A. No.
 5 MS. FAGAN:
 6 Q. Just like you to explain some of the key
 7 points.
 8 MS. TURNER:
 9 A. How it all works, yeah. In preparing for this
 10 presentation, I didn't want to get into the
 11 theory too much. The way the paper has been
 12 written is actually in common language, so it
 13 should flow and be a fairly easy read, but the
 14 36-page report does provide that high level
 15 overview and it just highlights a couple of
 16 key accepted practices and models that are
 17 commonly used across the aviation industry.
 18 In terms of the report itself, it does go
 19 into the definition of safety culture. It
 20 goes into key traits and characteristics of
 21 culture itself and how you might recognize and
 22 define one. It also goes into how to develop
 23 a positive safety culture. It's all very good
 24 and well, every company, including mine,
 25 including the Inquiry, including all those

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1 organizations represented here, have a
 2 culture. They have their organizational
 3 culture and then they also have a culture
 4 around how safety is handled and managed. The
 5 question is whether it's a good one or a bad
 6 one, and that's where some of these
 7 definitional areas assist and recognizing the
 8 traits and characteristics definitely assist.

9 In terms of how you'd set things up the
 10 best you can to help encourage, enhance or
 11 develop a positive safety culture. I just
 12 wanted to talk you through this concept which
 13 was presented earlier in my evidence presented
 14 late last year. There's merit in the
 15 relationship between all those structural
 16 things we've talked about, regulations,
 17 legislation, standards, committees,
 18 interaction, forum, safety management systems,
 19 safety cases, safety plans. All of those
 20 things help to create an environment and this
 21 model that you see on the screens, for those
 22 of you that can see it, and for those of you
 23 that can't see it, basically how do you
 24 develop a positive safety culture? You create
 25 an environment which influences people's

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1 behaviours, which in turn will shape or
 2 develop a culture. Okay.

3 So when you actually look at an
 4 organization's safety culture, if you're not
 5 happy with the traits and the characteristics
 6 and what they're saying to you, you can use
 7 this concept and this model to help redesign
 8 or reshape. So just to give you a very, very
 9 simple example. How do you create the
 10 environment? Well, if the regulator comes out
 11 and mandates that every organization is to
 12 have a safety management system, and these are
 13 the components, over time that will set up an
 14 infrastructure that creates an environment
 15 that defines certain accountabilities,
 16 responsibilities and practices. That will in
 17 turn affect people's behaviours.

18 I used the example before, we talked
 19 about operational risk management and how
 20 that's a tool in aviation. Now basically what
 21 it is, it's a standard risk assessment on a
 22 routine activity or task that you might
 23 undertake. Now very, very simplistically, for
 24 those of us that work in an office-based
 25 environment, to go to and from work, we might

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1 drive a car. You could develop an operational
 2 or standard risk assessment around how you
 3 drive the car and what's accepted in terms of
 4 your normal practices, and so that tool can
 5 define the environment. It can define your
 6 equipment, your procedures, the expectation,
 7 the speed, the limitations, whether you wear
 8 your seatbelt or not, whether you have
 9 passengers, whether you have your windows
 10 open. So you can actually define all that
 11 environment that will shape or influence
 12 people's behaviours, and which will in turn
 13 become a habit and become the way things are
 14 done around there.

15 So this culture slide is designed to, I
 16 guess, give direction or tips as to how to
 17 reshape a culture if you're not satisfied.
 18 Now if you're happy and satisfied with your
 19 current safety culture, and a lot of
 20 organizations are, it doesn't take much to tip
 21 the balance. It could be a change of
 22 leadership, could be a change of regulation.
 23 It could be a change of customer base. It
 24 could be a change of activity, and so all the
 25 time culture actually shifts and changes, but

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1 the theories presented in the paper help
 2 identify those traits and triggers of how you
 3 recognize those things.

4 MS. FAGAN:
 5 Q. Okay. What is the key points that you'd like
 6 to discuss on Slide 12?

7 MS. TURNER:
 8 A. Yeah.

9 MS. FAGAN:
 10 Q. Safety culture. Now it's a little difficult
 11 to read and there are -- the viewers who are
 12 trying to watch this from their desks at work
 13 or at home won't be able to read this slide,
 14 so it -- because it's a fairly busy slide, and
 15 it's a safety culture stages. So can you
 16 describe the stages?

17 MS. TURNER:
 18 A. Yes, sure. What this diagram represents, and
 19 for those of you that can't see it, I'll just
 20 talk through a few of the keys points. I
 21 mentioned before there's traits and
 22 characteristics of how you measure culture or
 23 how you recognize culture. Going back to the
 24 survey report, in part three, we asked a list
 25 of questions of the workers to help us define

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1 the culture. Now a couple of those questions
 2 were all around reporting. Do you feel
 3 comfortable that you can raise a safety
 4 concern and it will get actioned? You know,
 5 how would you describe your company's
 6 reporting culture? Is it opened or closed?
 7 Those type of things. Those questions were
 8 asked using some of these concepts and
 9 theories to actually gauge some of the traits
 10 and where things actually sat.
 11 So on this slide, a couple of the key
 12 concepts that I just wanted to talk through,
 13 maybe two or three of them, is what is a just
 14 culture. Now just to give you an example, a
 15 just culture is a culture where people are
 16 encouraged to highlight reports and
 17 information and incidents without fear of
 18 retribution or punishment. Now one of the
 19 very delicate aspects in just culture is what
 20 do you do if somebody purposefully breaks a
 21 rule and causes harm or injury to someone
 22 else? The just culture approach doesn't cover
 23 that type of behaviour, but it does cover the
 24 bulk of just normal human behaviour where
 25 errors occur, mistakes happen, you know, maybe

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1 people forget or there's a lapse or aren't
 2 trained properly and so a just culture is
 3 exactly that. It's just, it's fair and it's
 4 designed to, I guess, get information out.
 5 Now just an example that we might all
 6 recognize because, as Ms. Fagan said, it's
 7 very easy for this material to turn into
 8 theory and be hard to apply in practice, so if
 9 we took an example of just a workshop, be that
 10 an aviation workshop or a maintenance
 11 workshop, a just culture would encourage
 12 people to be open, report, communicate without
 13 fear of being penalized or punished. For an
 14 example, a worker would be more -- a worker
 15 would be more likely and comfortable to raise
 16 a concern if they know that they're not
 17 necessarily going to be penalized or punished.
 18 So in the case where, say, some oil is spilled
 19 on the floor of the workshop, if a just
 20 culture exists, people would be happy to,
 21 number one, report the information so that
 22 something can be done about it, and number
 23 two, not be afraid that they're going to get
 24 fired or they're going to get reprimanded for
 25 possibly making that mistake.

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1 Now as I said before, that's quite
 2 different if the person purposely goes out and
 3 pours oil on the floor in order to cause harm,
 4 and that's a separate issue that is dealt with
 5 in its entirety. Now if a closed or a
 6 punitive culture existed, people wouldn't
 7 necessarily put up their hand to say "hey,
 8 look, there's an issue over there" or there's
 9 an incident or there's oil on the floor.
 10 They'd just walk by it and say nothing through
 11 that fear factor, and you can just imagine
 12 that you apply a simplistic example like that
 13 to a complex environment like aviation where
 14 helicopters are involved, where people might
 15 see something that's wrong, yet if they're not
 16 necessarily comfortable, encouraged or open to
 17 put things up, the regulator, the operator,
 18 the helicopter provider, the pilot may or may
 19 not have that information readily available to
 20 them. So the just culture is all about what
 21 is done with the information and how it is
 22 investigated and whether there is penalty,
 23 cause or an openness, and one of the practical
 24 tools that is available is a just culture
 25 algorithm and it's used in accident and

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1 incident investigation and it's basically a
 2 decision flow chart that takes you through a
 3 question such as: the incident occurred, what
 4 type of event was it? Was it a procedural
 5 concern? Was it a training issue or was it a
 6 violation? And so you pick that and then you
 7 walk through and say: did the person do this
 8 on purpose? Yes or no. If the person did it
 9 on purpose, why did they do it? And then you
 10 can -- if they didn't do it on purpose, did
 11 they know that it was a situation that could
 12 cause harm? Yes or no. If they did know, you
 13 know, why was it breached? So it's actually
 14 like this decision flow chart.
 15 Now the end point actually gets you to a
 16 point that gives you guidance on whether or
 17 not there should be penalty, punishment,
 18 retraining, counselling or consoling and so
 19 that the behaviour that follows the
 20 investigation is commensurate with the type of
 21 era or the type of activity. That's a very
 22 long-winded way to basically say there is
 23 theory, there's structure. If you do adopt a
 24 just culture, it's more than just a concept.
 25 There are practices and procedures that

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1 actually go with the idea that need to be
 2 embedded into your safety set up and
 3 practices.
 4 MS. FAGAN:
 5 Q. So from that example, in a just culture, it
 6 wouldn't be just, you know, an expectation or
 7 a feeling or a sense that "if I report the oil
 8 on the floor, I'm not going to get in trouble
 9 or I'm not going to get a colleague in
 10 trouble"? You would see a system, some type
 11 of process where, in a just culture, a lot of
 12 questions would be asked, perhaps a lot of
 13 dialogue, as to why and you would investigate
 14 and get all the facts and depending on how
 15 that sorted itself out, a decision would then
 16 be made and that there would be a sense of
 17 fairness, but that the workers could see and
 18 rely on the fairness. They could see it.
 19 It's in a policy. It's in a manual. It's
 20 somewhere where they can see it. This is how
 21 this situation is going to be treated.
 22 MS. TURNER:
 23 A. Yes, yes, absolutely, and it's interesting
 24 that it's not just the decision on what takes
 25 place, but it's also what rectification and

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1 action follows through, and so, these systems
 2 and the procedures that go with these
 3 discipline around culture and the behaviours
 4 actually will shape whether it's a systemic,
 5 whether it's a procedural issue, whether it's
 6 a training issue that can be fixed to prevent
 7 that outcome, be that the oil on the floor or
 8 something more catastrophic.
 9 MS. FAGAN:
 10 Q. What about some of the other cultures? I
 11 mean, they may be similar but you've listed
 12 five, I believe. So what's the difference?
 13 MS. TURNER:
 14 A. Yeah, sure. I'll pick one like in terms of
 15 the learning culture and it's interesting, I
 16 think we all like to see ourselves as those
 17 that like to learn and, you know, you learn
 18 something new every day, but in terms of some
 19 of the traits and characteristics around a
 20 positive safety culture, it is one where
 21 there's lessons that are learned. Again, this
 22 isn't something that you just commit to from a
 23 philosophy. You need to actually put it in
 24 place. So how does that take place. So this
 25 is where your communication regime comes in,

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1 your training regime. The thought around how
 2 you do closed loop reporting so that oil on
 3 the floor, someone reports it, it's fixed, or
 4 does everybody else in the workshop who works
 5 in that situation know about the incident,
 6 know what happens and knows what was done to
 7 actually prevent it, and whether they have a
 8 role in that. So the learning culture is all
 9 around using that material to grow, develop
 10 and learn from others mistakes.
 11 I would say the aviation industry, as a
 12 whole, as a very strong learning culture. The
 13 offshore oil industry, the helicopter
 14 industry, the aviation industry is watching
 15 with great interest as to what comes out of
 16 this Inquiry. Why? Because they have a
 17 learning culture. Reviewing the Piper Alpha,
 18 you know, review with Lord Cullen and the
 19 findings that came out of that, it's a
 20 learning culture.
 21 MS. FAGAN:
 22 Q. So the cultures that you've listed here, a
 23 just culture, a reporting culture is a culture
 24 I assume that encourages reporting.
 25 MS. TURNER:

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1 A. Um-hm.
 2 MS. FAGAN:
 3 Q. A flexible culture, an informed culture,
 4 learning, are these good or bad cultures?
 5 MS. TURNER:
 6 A. Yes, sure. These would be seen as traits of a
 7 positive or a good safety culture and so I
 8 guess, the question is what's the flip side of
 9 what's negative and you could almost reverse
 10 these and say a positive trait is having an
 11 open reporting culture, a negative or a bad is
 12 having a closed reporting culture where people
 13 don't put up their hand, don't submit incident
 14 reports for whatever reason, be that they feel
 15 that nothing will happen if they do or that
 16 maybe they'll be penalized.
 17 MS. FAGAN:
 18 Q. How can the positive traits improve safety?
 19 And I mean, I know this may all be obvious,
 20 but from a practical perspective, how does
 21 having all this in place improve your safety
 22 situation?
 23 MS. TURNER:
 24 A. Yeah, sure. One of the biggest things in
 25 safety is it's very difficult to manage what

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1 you don't know about and one of the biggest
 2 ways that this work improves safety is by
 3 getting more information and a greater level
 4 of understanding of actually what's going on
 5 so that the right level of action can take
 6 place.
 7 Now match that with risk management,
 8 there's various risks that are acceptable and
 9 not acceptable, but in order to reduce risk,
 10 different people at different levels can do
 11 different things that are effective. The
 12 regulator can put a rule in place to actually
 13 fix something. An operator can put resources
 14 in place, such as training, equipment,
 15 education, knowledge. A worker can have a
 16 certain approach that can be put in place in
 17 terms of, you know, reporting and putting up
 18 their hand and using the systems provided by
 19 the operator.
 20 So in terms of how this can best improve
 21 safety, one of the biggest aspects is getting
 22 the information out. The second part is when
 23 that's out, having a process of how the action
 24 can take place, and what you'll find is how do
 25 you build these type of positive cultures. If

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1 you're not currently getting the information,
 2 number one, you've got to focus on that. Once
 3 you've got the information, if you don't do
 4 anything about it, people lose confidence very
 5 quickly. Well, I mentioned that and nobody
 6 did anything, you know. Well, I put up my
 7 hand and they don't do anything. You know, so
 8 you can lose confidence if that second aspect
 9 is an action.
 10 So you actually need to be ready that if
 11 you're going to put an effort into opening up
 12 your reporting culture that you're ready with
 13 the skills, people and processes to do
 14 something with it, and then finally having a
 15 balanced and fair approach so that you're not
 16 penalizing those that are giving you the good
 17 information.
 18 MS. FAGAN:
 19 Q. Okay, thank you. On this particular report, I
 20 don't have any other questions. So I'd just
 21 ask if you have any concluding remarks or
 22 comments? You've now been here for ten months
 23 and I know you have not done an analysis of
 24 our culture in the industry here, and I'm not
 25 asking you for that, but do you have any

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1 concluding remarks in light of the three
 2 reports and what this Inquiry can take away?
 3 MS. TURNER:
 4 A. Sure. In terms of the concluding remarks
 5 around the safety and organizational culture
 6 piece, there is a lot of theory in that, but I
 7 believe that the theory provides a good
 8 framework and structure to organize a lot of
 9 the other thoughts and concepts that we've
 10 discussed in the two papers. So I guess to
 11 just encase all three reports, there is a
 12 fairly strong interrelationship between all
 13 three topics that we've undertaken.
 14 The first was the worker survey and
 15 really getting a snapshot of where the current
 16 practices, views, perception, reality is at a
 17 given point in time and so that's been a
 18 really great resource and piece of information
 19 that can be used. The regulatory snapshot
 20 just gives us a good overview of what else is
 21 happening around the world and some of those
 22 key themes and patterns that are emerging can
 23 be used, and then finally, that safety culture
 24 report actually just provides us a structural
 25 framework to actually tie everything together

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1 and look at how the dots can be connected here
 2 for the industry.
 3 So from my perspective, it's certainly
 4 been a pleasure undertaking this assignment.
 5 Love to spend more time and getting into a lot
 6 more depth, particularly in the regulatory
 7 benchmarking in aviation practices, but I hope
 8 the presentation has been useful in explaining
 9 a lot of reports and many, many pages and I
 10 trust it's valuable to the Inquiry and to
 11 yourself, Commissioner.
 12 MS. FAGAN:
 13 Q. Thank you, Ms. Turner. They're the questions
 14 that I have. It has been very -- well, it's
 15 one thing to read the report, but it's another
 16 thing to have the author of the report come in
 17 and at least explaining the context,
 18 explaining the processes and some of the
 19 assumptions or limitations. I think it was
 20 helpful for me and others as to how to place
 21 these reports from a safety perspective. So
 22 it is 20 to 1. There's 20 minutes left, and I
 23 leave it to you, Commissioner, to decide how
 24 you want to use the time. I'm done. Thank
 25 you.

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1 COMMISSIONER:
 2 Q. Thank you. On the list now, well, the Inquiry
 3 counsel has led off and there is no counsel
 4 for the party being examined, of course.
 5 Counsel for Transport Canada, is counsel for
 6 Transport Canada present?
 7 MS. FAGAN:
 8 Q. Not present.
 9 COMMISSIONER:
 10 Q. No, not present, all right. CAPP?
 11 MR. SCHULTZ:
 12 Q. No questions, thank you.
 13 COMMISSIONER:
 14 Q. No questions, thank you. The three oil
 15 operators, HMDC?
 16 MS. STRICKLAND:
 17 Q. We're going to reserve our right for cross
 18 until all other crosses are completed.
 19 COMMISSIONER:
 20 Q. That may not be possible because C-NLOPB has
 21 asked me if they could go last, because the
 22 regulator is very much a -- so they will go
 23 last.
 24 MS. STRICKLAND:
 25 Q. We'd be content to go second last.

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1 COMMISSIONER:
 2 Q. So at any rate, you do want to ask questions?
 3 MS. STRICKLAND:
 4 Q. We may, depending on any issues that come up
 5 out of the cross-examination by other parties.
 6 COMMISSIONER:
 7 Q. I see. So you're not sure. Does that apply
 8 to all three oil operators?
 9 MR. PRITCHETT:
 10 Q. It does.
 11 MACDONALD, Q.C.:
 12 Q. It does, Commissioner.
 13 COMMISSIONER:
 14 Q. Yes, all right then. Counsel for Cougar, Mr.
 15 Stamp? A new face, welcome.
 16 STAMP, Q.C.:
 17 Q. Thank you, Commissioner. We don't have any
 18 questions at the moment.
 19 COMMISSIONER:
 20 Q. Okay, thank you. Helly Hansen?
 21 MR. SPENCER:
 22 Q. Commissioner, we have no questions at this
 23 time, although again, if something were to
 24 arise in cross-examination, we may want to,
 25 for clarification.

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1 COMMISSIONER:
 2 Q. All right then, thank you. Counsel for
 3 Memorial University of Newfoundland?
 4 HURLEY, Q.C.:
 5 Q. No questions.
 6 COMMISSIONER:
 7 Q. Thank you, Mr. Hurley. Counsel for the
 8 Government of Newfoundland and Labrador?
 9 MR. PRITCHARD:
 10 Q. We have a few questions.
 11 COMMISSIONER:
 12 Q. No questions.
 13 MR. PRITCHARD:
 14 Q. We have a few questions.
 15 COMMISSIONER:
 16 Q. Oh, you have a few questions. It's about 20
 17 minutes to 1. Would you like to start now?
 18 If you haven't many questions, you may be able
 19 to finish. What's your preference?
 20 MR. PRITCHARD:
 21 Q. Well, I don't have a lot of questions, but I
 22 wouldn't mind reviewing some of the material
 23 this morning during lunch and then what I
 24 have, I'll be brief.
 25 COMMISSIONER:

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1 Q. You wouldn't mind lunch hour to reflect on it?
 2 Is that what you're saying?
 3 MR. PRITCHARD:
 4 Q. Yes.
 5 COMMISSIONER:
 6 Q. All right then. Well, what I will suggest, in
 7 the interest of getting on with thing
 8 speedily, it's nearly quarter to one.
 9 Supposing we make the hour lunch quarter to
 10 two and so that we won't lose any time out of
 11 a fairly tight schedule. Is that all right?
 12 So if we could come back at quarter to two and
 13 you could begin then.
 14 MR. PRITCHARD:
 15 Q. Thank you.
 16 (LUNCH BREAK)
 17 COMMISSIONER:
 18 Q. Okay. Whenever you're ready then.
 19 MS. KIMBERLEY TURNER, EXAMINATION BY MR. ROLF PRITCHARD
 20 MR. PRITCHARD:
 21 Q. Good afternoon, Ms. Turner. My name is Rolf
 22 Pritchard and I represent the Province of
 23 Newfoundland and Labrador and the questions
 24 that I have for you this afternoon all stem
 25 from your review of selected offshore

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1 petroleum regulatory regimes.
 2 MS. TURNER:
 3 A. Um-hm.
 4 MR. PRITCHARD:
 5 Q. And just before I ask my questions, I guess I
 6 should just indicate that I'm aware of the
 7 limitations, if you will, that were expressed
 8 earlier today, which is that that's not your
 9 area of expertise.
 10 MS. TURNER:
 11 A. Yes.
 12 MR. PRITCHARD:
 13 Q. That you did a survey to assist the
 14 Commissioner. Obviously it relates to areas
 15 of expertise, but in terms of drilling down
 16 into it, it wasn't intended to be that type of
 17 report. I appreciate that. So if I ask
 18 questions that require too much detail or so
 19 forth, I'll understand if that's the response.
 20 MS. TURNER:
 21 A. Sure.
 22 MR. PRITCHARD:
 23 Q. One of the areas that you touched on at the
 24 start was you were asked about why you had
 25 selected certain regimes and I wanted to ask

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1 about that, only in the sense that
 2 Newfoundland is somewhat unique in the sense
 3 that it's a fairly small offshore, I think
 4 we've heard remarks to that extent, and other
 5 than the Nova Scotia regime that we had seen,
 6 most of the other regimes seem to be quite a
 7 bit larger, with perhaps the exception of the
 8 South African one, which I'll ask about in a
 9 moment.
 10 MS. TURNER:
 11 A. Yes.
 12 MR. PRITCHARD:
 13 Q. But I was wondering, in terms of other regimes
 14 around the world, I'd be curious to know, are
 15 you aware if there are others that are sort of
 16 more similar in size to the regime that we
 17 have in Newfoundland?
 18 MS. TURNER:
 19 A. Yeah, it was interesting when we looked at
 20 selecting the regimes to examine and research.
 21 We really did consider two things in
 22 particular. Firstly was the size and secondly
 23 was the unique operating environment here in
 24 terms of the weather, the cold, the nature of
 25 the operating environment here. There are

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1 other smaller jurisdictions. One of the other
 2 criteria that we put into the mix in selecting
 3 was the government structure, as well as the -
 4 - I guess whether or not it was a first or a
 5 third world country in that classification and
 6 also the sharing of onshore and offshore as
 7 well. There's a lot of variables in that and
 8 there's certainly different scope of structure
 9 with the various regulators in those smaller
 10 jurisdictions.
 11 MR. PRITCHARD:
 12 Q. I notice that the examples that were used, and
 13 they seem like fine examples, in most of those
 14 cases, I gather there are national regulators,
 15 as opposed to regional regulators as we see in
 16 Nova Scotia or Newfoundland.
 17 MS. TURNER:
 18 A. Yes.
 19 MR. PRITCHARD:
 20 Q. Would any of the other countries, perhaps that
 21 weren't considered, have more of the regional
 22 regulator model?
 23 MS. TURNER:
 24 A. Yeah, sure. I can't answer that in a lot of
 25 detail. However, when you look at the

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1 regulators, it really is driven by the size
 2 and the scope of the fields and so, you know,
 3 some countries have very small fields. Others
 4 have a lot that are untapped. Maybe their
 5 production hasn't commenced. The biggest
 6 thing in selecting the different jurisdictions
 7 wasn't so much to draw the exact similarities
 8 from size, structure, Commonwealth countries,
 9 et cetera, but it was more to really try and
 10 draw out some of the good practices that might
 11 be considered, nothing that everything can be
 12 scalable, which is really key in this area.
 13 MR. PRITCHARD:
 14 Q. Okay. I had a few questions about some of the
 15 specific countries. The first one I have
 16 concern the United Kingdom and you were good
 17 enough to provide the information that there's
 18 approximately 100 helicopters involved in that
 19 operation, and one piece I was curious is we
 20 have a certain environment here, as you
 21 pointed out, and obviously they have a certain
 22 environment there. The helicopters that are
 23 being flown, I'd be curious to know with some
 24 of these ones, how they compare in terms of
 25 the duration of the flight.

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1 MS. TURNER:
 2 A. Yes.
 3 MR. PRITCHARD:
 4 Q. Would it be a longer flight or a shorter
 5 flight or comparable? I don't know if that's
 6 something you can assist us with in terms of
 7 the different -
 8 MS. TURNER:
 9 A. Yeah, sure. We didn't necessarily specify
 10 that in the report, but you will note for each
 11 country there's actually maps and layouts of
 12 the operating environment or the area of
 13 jurisdiction, so that may be something to look
 14 at. In terms of the helicopter operations,
 15 the duration, even the sequencing of flight
 16 and how that happens, whether or not you just
 17 go direct to the installation and back or
 18 whether or not there's a route and a
 19 structure, we didn't do a comparison on that
 20 type of thing, however that certainly could be
 21 mapped out in that more in-depth work that I
 22 referred to earlier.
 23 MR. PRITCHARD:
 24 Q. Just one other question about the UK example,
 25 and I'm looking on page 13, and only because

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1 paragraph 3.4, which is where you focused in
 2 on the helicopter operations oversight and you
 3 had explained earlier on about the HSC, which
 4 I gather was a -- had responsibility for
 5 safety legislation across a broad range of
 6 activities, not just helicopter or the
 7 offshore. Is that correct?
 8 MS. TURNER:
 9 A. Yes.
 10 MR. PRITCHARD:
 11 Q. Okay. And here you explain there's an
 12 interaction with the civil aviation authority,
 13 which I guess is a structure we see repeated
 14 quite often.
 15 MS. TURNER:
 16 A. Yes.
 17 MR. PRITCHARD:
 18 Q. And I appreciate your remarks about trying to
 19 get away from a prescriptive approach for a
 20 lot of these jurisdictions, so if my question
 21 sounds as though I'm going after -
 22 MS. TURNER:
 23 A. No, that's okay.
 24 MR. PRITCHARD:
 25 Q. - a prescriptive approach, I don't mean it to.

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1 But I wonder, just sort of using an example
 2 that we could relate to here, certain specific
 3 things like survival suit standards or what is
 4 necessary, what kind of training standards are
 5 necessary or like the HUEBA that we heard
 6 about. In the UK example, for instance, which
 7 of those bodies would be responsible for
 8 setting those standards? Would it be one of
 9 those two or would it be another organization?
 10 MS. TURNER:
 11 A. Yeah, sure. I might leave that question to
 12 some of our experts following because I think
 13 I'm probably the odd man out when it comes to
 14 the experts, in terms of suits, training,
 15 survival, the equipment. I think there's
 16 other people that are more qualified to get
 17 into that level of detail, but certainly from
 18 a prescription versus regular -- the
 19 performance based review, and I know that's an
 20 area of interest to a lot of people and it
 21 really is an emerging area, an example from a
 22 principle based approach is a performance or
 23 an outcome based regulation would say you are
 24 to conduct -- or have an appropriate regime so
 25 that the skills of the workers are fit for

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1 purpose and would enable, you know,
 2 appropriate escape and evacuation, et cetera,
 3 as opposed to the regulation saying you must
 4 do HUET training. So you can see how the
 5 performance based outcome actually describes
 6 the competency or objective that you're trying
 7 to meet, which are to have skilled workers
 8 that can perform the function effectively to
 9 get out of an aircraft in the case of an
 10 emergency, as opposed to the prescription
 11 around exactly what way, shape and form that
 12 that could be achieved.
 13 MR. PRITCHARD:
 14 Q. Now with the other regimes that you looked at,
 15 Australia or Norway or Nova Scotia, or indeed
 16 Norway, if I were to ask a similar question,
 17 you know, sort of drilling down into those
 18 specific kinds of details, would your advice
 19 again be to deal with some of the other
 20 presenters?
 21 MS. TURNER:
 22 A. Yeah, absolutely, and you see that the scope
 23 of our work didn't extend into the specifics
 24 around equipment, training, even aircraft. It
 25 was more at that higher regulatory oversight,

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1 in terms of standards, approach, scope of
 2 regulation, as opposed to the data.
 3 MR. PRITCHARD:
 4 Q. The American example is a fascinating one,
 5 just the sheer virtue of the size.
 6 MS. TURNER:
 7 A. Yes.
 8 MR. PRITCHARD:
 9 Q. I had no idea of the numbers until I read your
 10 report. It was quite staggering. You make
 11 reference to 4,000 helidecks and 200 companies
 12 and the fleet sizes can range from 1 to 200
 13 aircraft. I'm wondering if you can assist us
 14 with a general number. Like for example, in
 15 the Gulf of Mexico, how many aircraft are we
 16 talking about?
 17 MS. TURNER:
 18 A. Yeah. We weren't actually able to ascertain
 19 an exact figure, but as it mentions here in
 20 terms of the helicopter operators, they really
 21 are very, very diverse and I don't know of too
 22 many other jurisdictions around the world
 23 where that is the case, where you have the
 24 smaller operators, and when I say smaller
 25 operators, it's not just in terms of aircraft

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1 numbers, but also aircraft size and
 2 capability. We're all familiar here with the
 3 S-92. It's actually quite a large helicopter.
 4 Some of these smaller operators actually have
 5 quite small aircraft and don't necessarily
 6 have the scope of capability, in terms of
 7 technology, aircraft, duration, equipment, et
 8 cetera.
 9 MR. PRITCHARD:
 10 Q. Just one other question about the American
 11 example, and at the risk of this perhaps being
 12 a question I should ask one of the other
 13 presenters, on page 26, in the second
 14 paragraph under 4.4, you indicate -- you talk
 15 about the Helicopter Safety Advisory
 16 Conference guidelines and you indicate that
 17 the guidelines are not binding, and then in
 18 the next paragraph, under the FAA, you also
 19 indicate at the end of that, there's no
 20 specific program or regulatory work under way
 21 with respect to offshore helicopter travel.
 22 You're not suggesting that, with respect to
 23 those items that I asked about earlier, that
 24 it's unregulated. It just, I guess, doesn't
 25 indicate what the specific source of that type

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1 of regulation is? Is that what it's saying?
 2 MS. TURNER:
 3 A. It's quite interesting. When you're talking
 4 about the HSAC, the topics that are discussed
 5 or in my exposure to those meetings, much more
 6 helicopter centric. They're focused on safety
 7 practices, technology, equipment of the
 8 aircraft, as opposed to the people and the
 9 workers and the personal protective equipment
 10 and suits, et cetera. So that forum that's
 11 being referred to in the States is looking at
 12 aircraft standards, interaction with the FAA,
 13 capability, technology, pilot training, and so
 14 it's much more aviation centric.
 15 MR. PRITCHARD:
 16 Q. Okay. I have a question about Australia now.
 17 MS. TURNER:
 18 A. Here we go.
 19 MR. PRITCHARD:
 20 Q. You indicate there's 166 offshore facilities.
 21 MS. TURNER:
 22 A. Um-hm.
 23 MR. PRITCHARD:
 24 Q. And I'm just curious, just trying to get a
 25 sense of the volume of flying. We're talking

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1 about a thousand aircraft or a hundred, any
 2 sense?
 3 MS. TURNER:
 4 A. No, I'd have to really look at the details,
 5 but my estimates based on my knowledge of the
 6 industry, maybe around 30 aircraft. So in
 7 terms of Australia, you've got three or four
 8 main operating areas. You've got down in the
 9 southeast corner and so, Esso is the primary
 10 operator. They have a fleet of six to eight
 11 aircraft. And then in the western and
 12 northern area, there's a number of other
 13 operators, CHC being one, Jayro Helicopters,
 14 and Bristows, and so there's Karatha and then
 15 up in Darwin, two of the local ports. So I
 16 wouldn't expect that it would be any more than
 17 30 aircraft. The actual size of the company's
 18 aircraft are quite small. Unlike the US and
 19 maybe the UK where one company may have 50
 20 aircraft or 100 aircraft, we're really talking
 21 about quite small operations that are
 22 comparable to what you have here in St.
 23 John's.
 24 MR. PRITCHARD:
 25 Q. I take it the areas that are serviced are

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1 those areas that are referred to as basins on
 2 the diagram? Is that right?
 3 MS. TURNER:
 4 A. That's correct, on page 29.
 5 MR. PRITCHARD:
 6 Q. Just with respect to the question I've asked
 7 about, you know, who would be responsible for
 8 those specific types of things like suits.
 9 MS. TURNER:
 10 A. Yes.
 11 MR. PRITCHARD:
 12 Q. In the Australian context, I don't know if
 13 perhaps it's one you're more familiar with.
 14 MS. TURNER:
 15 A. Yeah. I'm actually not that familiar with
 16 suits, so I might just push that to the side.
 17 You've got three or four experts that actually
 18 work in this field, sit on standards
 19 committees, et cetera, and so that's really
 20 outside my area of expertise.
 21 MR. PRITCHARD:
 22 Q. The last country that you referenced in the
 23 report is South Africa.
 24 MS. TURNER:
 25 A. Yes.

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1 MR. PRITCHARD:
 2 Q. And I appreciate that that's just a snippet.
 3 MS. TURNER:
 4 A. Yes.
 5 MR. PRITCHARD:
 6 Q. Are you able to assist us at all just to any
 7 idea of the number of sites, the number of
 8 aircraft involved?
 9 MS. TURNER:
 10 A. No. We were very, very keen to put South
 11 Africa in this research, the reason being our
 12 assumption was that it was a similar size,
 13 when you start looking at their oilfields, et
 14 cetera, so our assumption was it would be
 15 quite comparable in nature and similar legal
 16 structure and things there as well.
 17 Unfortunately we made multiple attempts to get
 18 that information and certainly within the time
 19 frame, it wasn't possible.
 20 MR. PRITCHARD:
 21 Q. All right. Those are my questions. Thank you
 22 very much.
 23 COMMISSIONER:
 24 Q. Okay, thank you, Mr. Pritchard. Mr. Harris?
 25 MS. KIMBERLEY TURNER, EXAMINATION BY JACK HARRIS, Q.C.

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1 HARRIS, Q.C.:
 2 Q. Thank you, Commissioner. Good afternoon. My
 3 name is Jack Harris. I'm a Member of
 4 Parliament, Parliament of Canada, for this
 5 riding and I just have a couple of questions.
 6 First of all, it may sound silly, but help me
 7 understand your design of your questionnaire
 8 because I'm looking at, let's say, Question
 9 No. 8, which talks about "how safe do you feel
 10 travelling in helicopters?" and it goes from
 11 not safe to very safe with people just being
 12 asked to answer on a scale of one to five, do
 13 you feel safe. I wonder what three means.
 14 Does it mean you don't feel safe, you do feel
 15 safe or you're not -- you don't have an
 16 opinion, and does that get counted in one side
 17 or the other or is it ignored? So could you
 18 enlighten us about that?
 19 MS. TURNER:
 20 A. Yes, sure. So just in terms of the question,
 21 if I can confirm, it is question number on the
 22 -
 23 HARRIS, Q.C.:
 24 Q. Question 8 on page 19.
 25 MS. TURNER:

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1 A. Okay, page 19, Question 8. That's correct.
 2 It was really interesting. We had a decision
 3 to make with asking this question of whether
 4 or not we purely wanted to ask a yes or no and
 5 we actually debated this quite long and hard
 6 internally within our team as to whether that
 7 would give us anything of use to say I'm safe
 8 or not safe. The scale of one to five was
 9 selected because you've got the extremes, you
 10 do have a middle and then you've got either
 11 side. So just looking at the results there up
 12 on the screen, you'll see that 344 survey
 13 respondents actually sat in the middle and
 14 your comment as to whether or not they didn't
 15 necessarily feel safe or unsafe may be the
 16 case.
 17 HARRIS, Q.C.:
 18 Q. Well, one -- if I may interrupt for one
 19 second?
 20 MS. TURNER:
 21 A. Um-hm.
 22 HARRIS, Q.C.:
 23 Q. It's not very unsafe and very safe, for
 24 example. It's not safe, which is an absolute,
 25 and very safe on the other end, which is an

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1 extreme. So I just wonder what that does to
 2 the middle position. Sometimes you see
 3 surveys and they tell you what one means, what
 4 two means -
 5 MS. TURNER:
 6 A. Yes.
 7 HARRIS, Q.C.:
 8 Q. - what three means, four and five, and it
 9 just seems to me that if I were answering the
 10 question, it may be arbitrary what I would
 11 think number three means and you debated it
 12 and what did you conclude? Did you conclude
 13 that that meant yes, I feel safe or I don't
 14 have a strong opinion about it one way or the
 15 other?
 16 MS. TURNER:
 17 A. Yeah. I would sit with your latter comment in
 18 terms of I don't necessarily have a strong
 19 opinion. If we were to put the word "safe" in
 20 the middle and then very safe at the other
 21 extreme, I think it would have skewed the
 22 results. You'll see that in all of the
 23 questions one to five, we actually opted to be
 24 consistent in the survey to just put the
 25 descriptors on the extremities at the one and

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1 the five so that is consistent throughout the
 2 survey.
 3 HARRIS, Q.C.:
 4 Q. If I may compare that to Question 23 on page
 5 28 when you ask to rate your organization's
 6 safety culture, you have poor on the one hand
 7 and excellent on the other, which I guess
 8 again the middle probably means okay.
 9 MS. TURNER:
 10 A. Yeah, that -
 11 HARRIS, Q.C.:
 12 Q. Not good, not bad.
 13 MS. TURNER:
 14 A. Yeah, that would be right.
 15 HARRIS, Q.C.:
 16 Q. Simply fit right in the middle.
 17 MS. TURNER:
 18 A. A scale of five does give you a choice of
 19 sitting on the fence in the middle and whether
 20 or not that's because people aren't
 21 necessarily compelled either way or whether
 22 they are neutral on the issue, both of those
 23 could be legitimate.
 24 HARRIS, Q.C.:
 25 Q. By way of comment, it seems to work there,

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1 between poor and excellent, but I'm not so
 2 sure when you have an absolute, whether it
 3 does the same thing, but that's -- I'm just
 4 trying to understand that for my own use.
 5 Well, thank you. On the -- I'd like to turn
 6 to the issue which I think probably dominates
 7 your presentation, which I found very
 8 interesting, and I'm interested in the notion
 9 of a performance or goal based or outcome
 10 based regimes versus the regulatory ones, and
 11 I was -- I put it to you that I don't think
 12 you're suggesting that it's an either/or
 13 proposition. It seems to me that when you
 14 described Norway, for example, you talked
 15 about as Norway matures, but Norway seems to
 16 me at least, to have probably a desirable mix
 17 of both.
 18 MS. TURNER:
 19 A. Yes.
 20 HARRIS, Q.C.:
 21 Q. But if you look at Norway, and if I may refer
 22 you to a couple of paragraphs here, you know,
 23 sometimes when you hear this performance
 24 based, it almost sounds like self regulation.
 25 MS. TURNER:

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1 A. Yeah.
 2 HARRIS, Q.C.:
 3 Q. Which I don't think you're proposing, but
 4 let's look at what Norway says in its -- or
 5 what you say about Norway, for example, on
 6 page 41, and describing Norway's -- that's
 7 Exhibit 210, page 41, at the bottom there, the
 8 framework regulations stipulate the Norwegian
 9 equivalent of the phrase "as low as reasonably
 10 practicable" and it says "far more danger to
 11 harm shall be prevented or limited in
 12 accordance with the legislation related to
 13 health, the environment and safety, including
 14 internal requirements and acceptance criteria.
 15 Over and above this level, the risk shall be
 16 further reduced to the extent possible." So
 17 this notion of reducing harm is an add on to
 18 the existing regulation, which I think are
 19 somewhat prescriptive in Norway. If I may, on
 20 page 43, when you're talking about the
 21 operations of the PSA, which is the Petroleum
 22 Safety Authority, and talk about giving
 23 consent to their plans.
 24 MS. TURNER:
 25 A. Yes.

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1 HARRIS, Q.C.:

2 Q. So the second paragraph there, about halfway

3 through, "an official consent is also required

4 as important milestones of operation or to

5 continue. The consent application includes

6 the current safety management system," which

7 is the kind of thing you're talking about.

8 MS. TURNER:

9 A. Um-hm.

10 HARRIS, Q.C.:

11 Q. "As well as a number of binding commitments

12 specific to that facility. There are minimum

13 standards which the operator must meet and any

14 commitments made beyond this minimum

15 constitute a legal requirement for the

16 operation." So even the safety management

17 systems have become legally binding upon the

18 operator once they're agreed to. And again,

19 if I may, you talked about the importance of

20 the industry in Norway, 35-34 percent of its

21 gross national income. On page 44, you talk

22 about the step approach. You mentioned that

23 specifically.

24 MS. TURNER:

25 A. Um-hm.

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1 HARRIS, Q.C.:

2 Q. In that same paragraph, it says "given the

3 nature of the petroleum industry and its

4 stature in Norway, the potential for public

5 embarrassment is a sufficient deterrent for

6 companies to engage with the regulator.

7 Dialogue is a key part of the supervisory role

8 and is influential in causing changes" and I

9 would have to agree with that. Obviously the

10 kind of dialogue, ask them to improve their

11 safety culture, develop your own plans and you

12 mentioned the fact that -

13 MS. TURNER:

14 A. Yes.

15 HARRIS, Q.C.:

16 Q. - in Norway now, the companies themselves are

17 putting forth their own schemes as well. But

18 I will say, as the last para -- the last

19 sentence of that paragraph says "fines and

20 charges, as well as the removal of consent,

21 are considered the last steps, are only

22 necessary in serious cases." So it seems to

23 me, from reading that, that not only does

24 Norway encourage the safety plans or safety

25 cases, various names that have been used to

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1 describe them, but it also has a significant

2 enforcement regime that it can use if it has

3 to?

4 MS. TURNER:

5 A. Yes.

6 HARRIS, Q.C.:

7 Q. And do you think that's a good thing or can

8 you go it alone with the safety management

9 cases?

10 MS. TURNER:

11 A. Yes, sure. With -- in my knowledge, all

12 regulators around the world have a continuum

13 of enforcement and certainly that stepped

14 approach outlines that continuum. At the very

15 severe end of penalty are fines, loss of

16 license, penalties, legal charges, et cetera.

17 What you're actually seeing is a bit of a

18 shift to really define that continuum and move

19 towards more that process based self fixing.

20 I'd like to pick up on a couple of things

21 you've talked about.

22 I'll come back to your comment about self

23 regulation, because I think it's really

24 important to understand where that fits in the

25 scheme of things, in particular in relation to

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1 a safety management system, but first of all,

2 this performance based regulation is firstly a

3 philosophical shift in the regulatory

4 approach. I think we'd all be in agreement

5 that a compliance based -- basically, the flip

6 side of a performance based or goal oriented

7 or outcome based, those three words are all

8 used interchangeably, is a compliance or

9 prescriptive based approach. Any regulator in

10 any industry, part of their role is to provide

11 or ensure compliance. Now whether you ensure

12 or assure, I guess, comes down to the degree

13 of certainty in which you're going to do that.

14 So first of all, this shift to a

15 performance based regulatory regime is a

16 philosophical shift. Secondly, and in

17 translating that into practice, the biggest

18 change actually comes in terms of how the

19 inspections are undertaken by the regulators'

20 inspectors and whether or not it's compliance

21 based checklist auditing where the inspector

22 goes in with their list and only checks that

23 or whether it's process based auditing, and

24 this is quite important where the inspector

25 goes in to evaluate a process behind how a

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1 company does something, as opposed to just the
 2 rule or the actual outcome of that compliance
 3 based aspect itself.
 4 So when we're talking about shifting,
 5 you're right in Norway it has been this shift
 6 over time. They do still have, in most cases,
 7 that full continuum. I guess the thing comes
 8 down to where is the emphasis? Is it more on
 9 the process based side? Is it more on
 10 compliance or is it fairly balanced and use
 11 both?
 12 In terms of safety management systems,
 13 there is a recognition, particularly -- and
 14 I'll speak from aviation regulators and one
 15 could translate that across to the petroleum
 16 industry, just from a principle based
 17 approach, that not every scenario, case,
 18 hazard or risk in the aviation industry can
 19 be, number one, identified by the regulator
 20 and number two, have a rule in place to
 21 mitigate, and I use that word quite
 22 deliberately, to mitigate or remove that risk.
 23 And so the move in the aviation field has been
 24 to adopt this performance or outcome base that
 25 relies on the operator, the helicopter company

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1 in this case or the aviation provider,
 2 airport, airline, et cetera, to have a process
 3 by which they manage that issue, so that they
 4 will pick up their hazards, their risks, the
 5 severity and put appropriate reduction
 6 measures in place.
 7 There is a recognition in the aviation
 8 regulatory world that after years and years
 9 and years of having a workforce of inspectors
 10 who are prescriptive or compliance based, that
 11 are recruited on their experience and industry
 12 knowledge, to shift that to a work force that
 13 has process based thinking or systems based
 14 thinking is actually a huge shift and I've had
 15 conversations in the last three months with
 16 the FAA in the US, Transport Canada in the
 17 aviation, marine, rail and security areas, the
 18 Civil Aviation Authority in New Zealand and
 19 the aviation regulator in Australia. All the
 20 same conversation about how do you shift your
 21 work force capability from compliance and
 22 prescriptive based approach into this process
 23 based evaluation. It's actually a different
 24 way of auditing and evaluating.
 25 HARRIS, Q.C.:

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1 Q. I think we could all agree that having
 2 industry be very conscious of the fact that,
 3 you know, a process based assessment is
 4 valuable, but there's still an implementation
 5 side of all of this.
 6 MS. TURNER:
 7 A. Yes.
 8 HARRIS, Q.C.:
 9 Q. And someone still has to make a decision, you
 10 know, and get the case, for example, as the
 11 Commissioner did recently in this
 12 recommendation that a 15-minute or 20-minute
 13 response time is required, as opposed to a 45-
 14 minute response time or that, you know, gas
 15 tanks are -- will be or will not be in the
 16 same space as passenger, all of these things
 17 have to be decided.
 18 MS. TURNER:
 19 A. Yes.
 20 HARRIS, Q.C.:
 21 Q. And I notice you use the word "only", that an
 22 inspector would not only be looking at a
 23 checklist.
 24 MS. TURNER:
 25 A. Yeah.

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1 HARRIS, Q.C.:
 2 Q. You're not saying, I don't think, but it
 3 sounds like it -
 4 MS. TURNER:
 5 A. One system doesn't replace -
 6 HARRIS, Q.C.:
 7 Q. - you're shifting. You're not actually
 8 removing -
 9 MS. TURNER:
 10 A. Replacing, correct.
 11 HARRIS, Q.C.:
 12 Q. - the regulation. You're suggesting that
 13 there ought to be that safety culture, the
 14 safety management system are very valuable,
 15 but I mean, even Australia where, again,
 16 there's quite a lot of interest in the case,
 17 the safety case, I see on page 32 of the same
 18 Exhibit 210, I believe, the -- I forget what
 19 that means now, but "the petroleum safety
 20 authority addresses its core regulatory
 21 responsibilities through monitoring and
 22 enforcement strategies that include the
 23 planned inspections, themed audits," which you
 24 talked about -
 25 MS. TURNER:

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1 A. Um-hm.
 2 HARRIS, Q.C.:
 3 Q. - "assessments and acceptance of safety cases,
 4 safety management plans for diving and
 5 pipelines, investigation of incident or
 6 complaints and enforcement activities that
 7 include measures for prosecutions and
 8 ultimately withdrawal of safety case
 9 approvals."
 10 MS. TURNER:
 11 A. That's right.
 12 HARRIS, Q.C.:
 13 Q. So some of these things are kind of big
 14 hammers, like they'll take away your license,
 15 you can't produce oil or you can't fly your
 16 helicopters.
 17 MS. TURNER:
 18 A. Yes.
 19 HARRIS, Q.C.:
 20 Q. But that's, you know, not very often going to
 21 be used unless someone is totally negligent
 22 and reckless with respect to how they're
 23 handling their business, but enforcement for
 24 violations of regulations or violations of
 25 safety procedures seems to me to be still an

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1 important part of keeping behaviours operating
 2 in conformity with safety requirements. Would
 3 you agree with that?
 4 MS. TURNER:
 5 A. Yes, I'd agree with your comments around a few
 6 things. Firstly is the balanced approach,
 7 that it's not either/or. So you don't replace
 8 compliance with regulations with this process
 9 based thinking. It is a continuum and a shift
 10 of emphasis and I think that's predominantly
 11 because the scope of risk that any regulator
 12 in any industry has is quite broad. So the
 13 question comes down to is it the role of the
 14 regulator to identify the risks and hazard and
 15 then put regulations in place to control the
 16 risk or is it the role of the regulator to set
 17 the standard and audit against the standard
 18 and how does that take place.
 19 Your reference to enforcement, you're
 20 right. There is a, I guess, a severe end of
 21 that continuum which is where the penalty, the
 22 enforcement, the legal penalties come into
 23 play. A regulator really has a number of
 24 roles. One is to -- and I'm speaking from a
 25 position of expertise in the aviation

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1 industry, is to set rules and regulations and
 2 to provide some level of confidence that there
 3 is compliance with those regulations.
 4 Now in the aviation industry, most
 5 regulators that I've heard in a public forum
 6 have said our standards and our regulations
 7 are minimum. They're not the highest standard
 8 and they're not necessarily best practice. So
 9 from a society's tolerance perspective, they
 10 have been prescriptive in what the criteria is
 11 for some of the specifics, but certainly there
 12 is a push to encourage the aviation industry
 13 to go beyond compliance and not strive to meet
 14 the regulatory minimums or the regulations.
 15 HARRIS, Q.C.:
 16 Q. You mentioned Transport Canada. Recently,
 17 Transport Canada moved to what was called by
 18 its critic, self management of its safety and
 19 maintenance programs and in the face of
 20 criticism backed off of that and said no, no,
 21 we will continue to monitor that ourselves.
 22 MS. TURNER:
 23 A. Yeah.
 24 HARRIS, Q.C.:
 25 Q. We're not satisfied to leave that to the

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1 airline industry. So this debate is still
 2 going on. This only happened in the last six
 3 months.
 4 MS. TURNER:
 5 A. Yes.
 6 HARRIS, Q.C.:
 7 Q. I notice in your paper as well, on page 25,
 8 talking about the American experience, that
 9 the basis of MMS regulatory enforcement is
 10 through the self inspection program.
 11 MS. TURNER:
 12 A. Um-hm.
 13 HARRIS, Q.C.:
 14 Q. And they have a list of 27 criteria that you
 15 self inspect for. Someone said to me recently
 16 that, you know, self inspection is a great
 17 thing or self regulation is great. If you ask
 18 me how I'm doing, I'll probably tell you I'm
 19 doing pretty good.
 20 MS. TURNER:
 21 A. Fine, thanks, absolutely.
 22 HARRIS, Q.C.:
 23 Q. If I ask somebody else, they might have a
 24 different opinion about that. So you know,
 25 while I'm supporting your notion of the fact

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1 that there needs to be a culture of safety,
 2 and by the way, I mean, my experience in
 3 acting for unions in the offshore oil industry
 4 is every oil company will tell you -- they're
 5 all here and they'll tell you when they get
 6 up, that safety is number one priority, and we
 7 understand that, but you still have to have
 8 what are the nuts and bolts, what's the
 9 content of that, and you know, you can't
 10 replace a regulation by someone saying we have
 11 a culture of safety and we look after that
 12 ourselves. So I'm glad you're not saying we
 13 throw out the enforcement and the regulation,
 14 but that we add that this is an add on, that
 15 the safety culture, the safety management
 16 system, the safety cases is in fact forcing
 17 the industry to be proactive and come up with
 18 the ideas that they themselves say we don't
 19 want to be regulated because we have better
 20 ideas than being stuck with the regulations.
 21 Would you also agree that, as you say,
 22 some regulators will say that the standards
 23 are unlimited, they should move up and keep up
 24 with the latest technology and the latest
 25 advances as well? That it shouldn't be just a

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1 floor that stays as a floor. That that floor
 2 actually moves with the times and are updated
 3 in accordance with the latest technology?
 4 MS. TURNER:
 5 A. Yeah, it's very fair to say that any
 6 regulator, unless the industry that they're
 7 regulating is stagnant and doesn't change,
 8 would be aiming to update regulations. Now
 9 the cycle for how that is done and the time
 10 lag, certainly in the aviation industry is
 11 quite large. For instance, changes in
 12 technology and the introduction of helicopter
 13 terrain avoidance warning systems, the
 14 technology is readily available. It is a
 15 fantastic risk reduction measure to help
 16 prevent controlled flight into terrain, but
 17 it's not necessarily mandated in the
 18 regulations.
 19 Now one would see over time as the
 20 technology is more readily available, the
 21 accepted practise, there will be a drive from
 22 the regulator to make, I would assume, that
 23 what's seen as now beyond compliance, probably
 24 the baseline over time, and so there really is
 25 that shift.

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1 In my presentation, I emphasize this
 2 issue of safety assurance, and I can't stress
 3 this enough, and I'm not sure, you know,
 4 whether everybody's latched onto how safety
 5 assurance differs from just normal audit or
 6 inspection. Assurance is about providing
 7 confidence and there is a range or again a
 8 continuum of tools and processes and
 9 techniques as to how you can provide
 10 confidence that things are safe. For example,
 11 a self-inspection program sits on that
 12 continuum, but what is that designed to do.
 13 Is it designed to give assurance internally to
 14 the company that those list of 27 things are
 15 covered, or is it designed to give confidence
 16 to the regulator that they're compliant with
 17 regulations?
 18 So with an assurance regime or an
 19 assurance program, you actually map the
 20 functional areas of the organization. You
 21 work out what level of assurance is required,
 22 and a simple rule is there's assurance level
 23 1, 2, and 3. A level 1 is where you just give
 24 a statement of assurance, your word; ask me
 25 and I'll tell you that I'm good. The second

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1 one is having that statement of assurance with
 2 some evidence that can be checked by whoever
 3 is checking, and assurance level 3 is saying,
 4 thanks very much, but I'm going to check this
 5 myself, and so -- whether or not that's a
 6 third party 100 percent compliance-based
 7 audit.
 8 So with this move to have a structured
 9 approach around safety assurance, there is a
 10 recognition that it's not just one tool or one
 11 thing that is going to provide protection or
 12 provide 100 percent confidence. There's going
 13 to be this continuum, and certainly where this
 14 self-administration, self-regulation, or
 15 safety management systems fit, they all have a
 16 role in there somewhere, but it's important to
 17 get the balance.
 18 HARRIS, Q.C.:
 19 Q. How does a regulator assess a safety
 20 management system or a safety case? They
 21 obviously have to do it against some set of
 22 criteria.
 23 MS. TURNER:
 24 A. Yes.
 25 HARRIS, Q.C.:

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1 Q. And some of the issues that the Commissioner
 2 is dealing with, and whether we have forward
 3 operating radar -
 4 MS. TURNER:
 5 A. Yes.
 6 HARRIS, Q.C.:
 7 Q. And a search and rescue helicopter, these are
 8 all -- all these come at a cost, and it's a
 9 cost that obviously is going to be borne not
 10 by the regulator, or the taxpayer, but by the
 11 industry itself.
 12 MS. TURNER:
 13 A. Yes.
 14 HARRIS, Q.C.:
 15 Q. And so what criteria does the regulator use as
 16 to whether to approve or not approve a safety
 17 management system? Isn't it better to have a
 18 set of, okay, these are - this technology is
 19 available, we want you to use it, and not that
 20 we don't care about the cost, but we know that
 21 it's important enough to have, so we want to
 22 have it.
 23 MS. TURNER:
 24 A. Uh-hm.
 25 HARRIS, Q.C.:

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1 Q. So does it not put the regulator at a bit of a
 2 disadvantage having to compare apples and
 3 oranges, or make evaluations based on whatever
 4 argument is being given at another particular
 5 time? At the end of the day, do they still
 6 not have to have a series of criteria by which
 7 to evaluate the safety case?
 8 MS. TURNER:
 9 A. Um.
 10 HARRIS, Q.C.:
 11 Q. I mean, maybe obviously there could be add-ons
 12 that the industry comes up with on their own
 13 that the regulator might not have thought of,
 14 as you say. They can't think of every
 15 situation.
 16 MS. TURNER:
 17 A. Yes.
 18 HARRIS, Q.C.:
 19 Q. But it seems to me there has to be still a
 20 very robust set of regulations that ensures
 21 that the - not just the basic safety regime,
 22 but whatever is reasonably available is put
 23 into place.
 24 MS. TURNER:
 25 A. There's a couple of - couple of components to

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1 answer that question. You asked the question,
 2 how do you evaluate a safety management
 3 system. You also asked what's the criteria
 4 for that evaluation in relation to the detail,
 5 and one of the things I wanted to thread in, I
 6 mentioned this in my synopsis around paper #2
 7 with that comparison of the regulatory
 8 regimes, that there is a move to risk-based
 9 approach. The types of things that you're
 10 raising really are the reason why risk
 11 management is being introduced into the mix.
 12 Why; because somebody needs to identify,
 13 measure, and make a determination of what
 14 level of risk is acceptable, and whether
 15 that's the regulator in a case where that
 16 prescriptive approach will be taken and you
 17 would mandate a rule or regulation for a piece
 18 of equipment, or whether it's the operator,
 19 and when I say "operator", I'm not referring
 20 to an oil operator as such, I'm referring to
 21 an aviation operator, it's the same
 22 terminology used in two different industries,
 23 whether the operator identifies the risk,
 24 quantifies, and then determines what level of
 25 risk they're willing to accept.

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1 So the risk management piece needs to be
 2 thrown into the mix with this conversation and
 3 with the debate. In terms of how you evaluate
 4 a safety management system, there is criteria.
 5 I'll give you a great example. In terms of
 6 measuring a safety management system, a
 7 prescriptive approach, when you look at the
 8 elements of a safety management system, one is
 9 around safety communication. Another element
 10 is around safety accountabilities, etc.
 11 The old way of having a safety program,
 12 and when I say "old", prior to the
 13 introduction of safety management system,
 14 there was a notion of prescription that every
 15 aviation organization had to have a safety
 16 manager and a safety committee, and so there
 17 was rules in place or guidance in place to
 18 basically say you don't have a great safety
 19 program unless you have a safety committee. A
 20 safety management system would define that you
 21 need to work out who has what levels of
 22 accountability and responsibility. If the way
 23 that you choose to do that is through a safety
 24 committee, then that's what evidence you
 25 provide to show that you're actually meeting

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1 the elements of the safety management system.
 2 The trick is when you have a workforce that
 3 has a culture of compliance based, they're
 4 looking to the list to say that you must have
 5 a safety committee, you must have a safety
 6 manual, you must have a policy statement on
 7 the wall signed by the CEO. Now they're all
 8 good pieces of evidence to demonstrate that
 9 you might have a safety management system, but
 10 you can get a bit confused if somebody has the
 11 mindset from that compliance checklist based
 12 approach. When they're asked to go out and
 13 evaluate as opposed to check or just audit
 14 whether or not the accountabilities that this
 15 company has defined are appropriate, whether
 16 or not they're going to get the right level of
 17 attention with the safety matters, and so
 18 there really is that shift.

19 A good example of this is with Transport
 20 Canada's introduction of the safety management
 21 system some time ago, and this would be going
 22 back to your debate, the jury is still out and
 23 there's still a lot of dialogue, in an attempt
 24 to - and this is my personal opinion in
 25 looking at SMS and how to implement. It's

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1 quite a difficult process because the aviation
 2 industry, the demographics and the culture of
 3 the people that you want to be pilots,
 4 engineers, and the technical people, actually
 5 are quite compliance-based on their approach.
 6 They start, taxi, take off, they fly, they
 7 land, they come back. When you give options
 8 of it's up to you as to how to do it, it goes
 9 against the grain as to the environment and
 10 the behaviours that are traditionally set up.
 11 So when SMS was introduced by civil aviation
 12 in Canada, their work was really recognized as
 13 some of the leading work around the world, and
 14 you talk with any regulator and certainly
 15 Transport Canada's material really does stack
 16 up and is excellent work.

17 When you translate that into practise,
 18 Transport Canada provided very comprehensive
 19 guidance material to the industry. Each
 20 element of the SMS, it listed criteria, listed
 21 examples of evidence. There was a general
 22 move in the aviation industry for them to take
 23 that guidance material and have the mentality
 24 that this is the regulator's prescription, I
 25 have to have 1.1.1, 1.1.2, 1.1.3 because of

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1 the cultural aspects. So this is why culture
 2 is so important when you implement these
 3 different systems. It needs to be taken into
 4 account or things can, I guess, lose the
 5 balance or sometimes the intent of how it was
 6 designed to deliver on the outcome that we
 7 talked about before.

8 HARRIS, Q.C.:
 9 Q. I submit that it didn't work in that
 10 particular case, and I guess what I worry
 11 about is that these things take time.

12 MS. TURNER:
 13 A. Yeah.

14 HARRIS, Q.C.:
 15 Q. You know, this talk about culture and safety
 16 culture, what happens in the meantime while
 17 people are developing this new culture or this
 18 new idea; someone has got to be minding the
 19 shop and making sure that safety regulations
 20 or safety interests are being followed.

21 MS. TURNER:
 22 A. Uh-hm.

23 HARRIS, Q.C.:
 24 Q. I take it you wouldn't be happy with a regime
 25 that just suggested we have the safety

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1 management system and we have no regulations
 2 and no enforcement and this stuff, operating
 3 under guidelines, you wouldn't be happy with
 4 that, would you?

5 MS. TURNER:
 6 A. Absolutely not, and I don't think there's been
 7 any assertion that a safety management system
 8 would play that role because a safety
 9 management system, one of the key differences
 10 between a safety program and a safety
 11 management system is the risk management
 12 component, and I think a lot of people forget
 13 that. A very simple way to describe a safety
 14 management system is you have the reactive
 15 component, which is about incident and
 16 accident investigation and data and what you
 17 do with that, you have the proactive component
 18 which is all about identifying, assessing, and
 19 managing risks, things that could happen, and
 20 then you encase it within a framework of
 21 accountability, so the reactive and proactive
 22 information moves to the right level of the
 23 organization, gets the attention, gets the
 24 appropriate assessment, gets the appropriate
 25 action and resourcing for that, so a lot of

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1 people forget the proactive risk management
 2 piece and the role that that plays.
 3 Now an interesting thing to note, if you
 4 look at the ISO standards committee for risk
 5 management, the International Standards
 6 Organization, they've published last year an
 7 international standard on risk management. It
 8 is not a compliance based standard. You can't
 9 get certification against ISO 31000, unlike
 10 ISO 19000 quality systems and environmental
 11 management systems and things where you can
 12 get certification and there's a little bit
 13 more prescription. The risk management
 14 standards is a process and the Chairman of
 15 that standards committee, Kevin Knight, will
 16 tell you it's not a compliance based standard.
 17 So again, I guess, it gives you a feel for the
 18 philosophy. It really is a passive maturity.
 19 It certainly isn't switch off one regime, turn
 20 on the other.
 21 So the way that Norway has kind of
 22 shifted their approach over, you know, quite a
 23 lengthy period going back into the 80s, is
 24 quite appropriate and even the move into the
 25 2011 regulations are yet another shift along

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1 that continuum. So it really is a journey,
 2 and not one or the other.
 3 HARRIS, Q.C.:
 4 Q. Thank you. That's been quite helpful.
 5 MS. TURNER:
 6 A. Thanks.
 7 COMMISSIONER:
 8 Q. Thank you, Mr. Harris. Mr. Earle?
 9 EARLE, Q.C.:
 10 Q. No questions today, Mr. Commissioner.
 11 COMMISSIONER:
 12 Q. Thank you. Counsel for the families, Mr.
 13 Martin.
 14 MR. MARTIN:
 15 Q. I have no questions, Commissioner.
 16 COMMISSIONER:
 17 Q. Thank you. Counsel for the pilot's estates,
 18 Ms. O'Brien.
 19 MS. KIMBERLEY TURNER - EXAMINATION BY MS. KATE O'BRIEN:
 20 MS. O'BRIEN:
 21 Q. Good afternoon, Ms. Turner. If you'll just
 22 give me a moment here to get organized. The
 23 first questions I have have to do with the
 24 survey that was done.
 25 MS. TURNER:

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1 A. Uh-hm.
 2 MS. O'BRIEN:
 3 Q. And I wanted to find out were the flight crew
 4 included as participants in the survey? We're
 5 talking about Cougar employees now, pilots and
 6 co-pilots.
 7 MS. TURNER:
 8 A. Sure. The intent of the survey was
 9 predominantly for the passengers as it was a
 10 passenger survey, and so the distribution was
 11 really designed for the people checking in.
 12 However, you can see on page 15, Question 3,
 13 we did have two pilots or aircrew that
 14 actually filled in a survey, and I take it
 15 that they were either in transit or out at the
 16 heliport and opted to do the survey. I'm very
 17 much of the opinion if you were to run the
 18 same survey of the Cougar staff, you would get
 19 different results because of their safety
 20 regime, their safety system, and the practises
 21 there within the organization.
 22 MS. O'BRIEN:
 23 Q. So that part answers my question, but leads to
 24 some more, because when you say that the
 25 survey was in part designed to -- your basis

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1 was to look at the list of issues that the
 2 Commissioner developed.
 3 MS. TURNER:
 4 A. Uh-hm.
 5 MS. O'BRIEN:
 6 Q. And sort of designed the survey around those
 7 issues.
 8 MS. TURNER:
 9 A. Yes.
 10 MS. O'BRIEN:
 11 Q. So there's a number of those issues that
 12 really address flight crew issues.
 13 MS. TURNER:
 14 A. Yes.
 15 MS. O'BRIEN:
 16 Q. So why was the decision made not to more
 17 specifically target Cougar employees in the
 18 survey?
 19 MS. TURNER:
 20 A. Our brief was to really target the offshore
 21 oil workers and that workforce that hadn't
 22 necessarily - well, it's a very big group and
 23 hadn't necessarily provided evidence outside
 24 the handful of representatives. I agree with
 25 you, I guess, implied intent that there would

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1 be great value in surveying the pilots and the
 2 operational staff and the administrative staff
 3 at Cougar, and I wouldn't be surprised if
 4 Cougar actually undertakes regular safety
 5 culture surveys because that is a normal part
 6 of a safety management regime that we've been
 7 discussing.

8 MS. O'BRIEN:
 9 Q. Okay. In terms of the response that we did
 10 get from aircrew, we have two aircrew that
 11 responded here, do you have any idea what
 12 percentage of Cougar's aircrew workforce that
 13 is? In other words, do you know how many
 14 pilots, co-pilots, are employed by Cougar to
 15 work in the Newfoundland and Labrador
 16 offshore?

17 MS. TURNER:
 18 A. I can't answer that question, but two people
 19 certainly isn't a good cross-section. So I
 20 wouldn't rely on that as a sound and balanced
 21 representation.

22 MS. O'BRIEN:
 23 Q. All right. The next question I wanted to ask
 24 a bit about has to do with when you did your
 25 review here this morning of the regulatory

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1 regimes, at the end Ms. Fagan asked you to
 2 kind of go through some conclusions, trends
 3 that you saw.

4 MS. TURNER:
 5 A. Yes.

6 MS. O'BRIEN:
 7 Q. And the one I was in particular interested in
 8 was the interaction between the aviation
 9 companies, the air operators, the Cougars of
 10 the world - sorry, and the interaction between
 11 them, so the aviation regulators like
 12 Transport Canada, with the oil operators.

13 MS. TURNER:
 14 A. Yes.

15 MS. O'BRIEN:
 16 Q. So can you give us a little bit more
 17 information about what's going on in the other
 18 regimes between those two regulatory bodies?

19 MS. TURNER:
 20 A. Yeah, sure. I think we'd all be in agreement
 21 that one of the good principles of having a
 22 great safety regime is communication, and you
 23 certainly can't establish a safety regime in
 24 isolation of your key stakeholders, and I
 25 think like other industries I've referred to

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1 where you've got two very big industries, the
 2 oil industry and the aviation industry, they
 3 both have their own regimes and there really
 4 is a need and it's a healthy approach to try
 5 and get an integration or at least some type
 6 of connectivity of communications, issue
 7 identification, resolution, accountabilities,
 8 etc, in that. It's a shame - I was going to
 9 actually include a slide in my presentation,
 10 but it's not necessarily written up in the
 11 material, where when you have these two
 12 separate industries that come under their own
 13 regulatory regimes, they have their own safety
 14 standards, cultures, practises, etc, you need
 15 something to actually connect them. Whether
 16 or not that's a forum, whether that's an
 17 integrated safety management system, whether
 18 or not it's a liaison body, there really needs
 19 to be some thought put into how you connect
 20 these two different regimes at all different
 21 levels.

22 Now in the report, I think two out of the
 23 six countries actually had a formal memorandum
 24 of understanding between the aviation
 25 regulator and the oil regulator, which is very

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1 much at that high level regulatory regime all
 2 the way down into, you know, pilots talking
 3 with workers, pilots unions talking with
 4 worker unions, you know, and that
 5 representation at every level. So again
 6 there's great merit in mapping that to try and
 7 get a complete and balanced approach to the
 8 whole thing because aviation safety, you can't
 9 have the safety of half a helicopter, you
 10 can't have a safety program for those in the
 11 back and a safety program for those in the
 12 front. They actually need to talk and they
 13 need to connect. Unless you get either self-
 14 empowered agreement with the bodies coming
 15 together and just doing it because it's a good
 16 thing, or regulatory agreement through some
 17 MOU to say we're going to mandate that this
 18 combination of aviation and petroleum needs to
 19 have an integrated approach to safety.

20 There needs to be some definition, be
 21 that voluntary or regulatory, to try and, you
 22 know, encourage that type of connectivity. My
 23 advice and what I've seen well is where it
 24 actually just happens by the stakeholders
 25 because it's a good thing. Going back to the

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1 discussion that we were just having with Mr.
 2 Harris about prescriptive versus performance
 3 based, the outcome that we want is the safety
 4 of the whole helicopter and integrated
 5 cultures and practises, and, you know, all of
 6 that side of things, that's your outcome that
 7 you want. How you achieve that; sure, you can
 8 mandate it in regulation, but chances are if
 9 you did that, there'd be a compliance based
 10 mentality of we have to do this. So you don't
 11 necessarily get the value out of - the full
 12 value out of things first up.

13 MS. O'BRIEN:
 14 Q. Okay. So you're saying in other jurisdictions
 15 you're seeing a formal MOU between the oil
 16 operator regulator - the oil regulation, and
 17 the aviation regulations. What did you see in
 18 Nova Scotia?

19 MS. TURNER:
 20 A. We didn't necessarily uncover anything in our
 21 research that demonstrated that. That's not
 22 to say that it's not in place, and it would be
 23 worth finding out.

24 MS. O'BRIEN:
 25 Q. Okay. So do you have any idea what's going on

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1 in Newfoundland and Labrador between C-NLOPB
 2 and Transport Canada in terms of how those two
 3 bodies are communicating?

4 MS. TURNER:
 5 A. Yeah, not any formal knowledge of activities,
 6 but, you know, I do meet regularly with the
 7 aviation community and a couple of weeks ago I
 8 met with the DG, the Director General of Civil
 9 Aviation, and it wasn't a topic of discussion
 10 in terms of a defined activity, yet there is a
 11 very strong philosophy from the current
 12 leadership within Transport Canada to get
 13 levels of connectivity, both in this sector
 14 and in others, and there's a great level of
 15 interest as to how that can take place.

16 MS. O'BRIEN:
 17 Q. Okay. It's certainly something, from my
 18 perspective, having watched - you know, during
 19 this Inquiry, heard all the evidence unfold,
 20 something that strikes me as maybe missing for
 21 us. You talked a bit about how some of the
 22 oil regulators are even engaging their own
 23 aviation experts, whether they have it in-
 24 house or whether they're contracting out with
 25 consultants.

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1 MS. TURNER:
 2 A. Yes.

3 MS. O'BRIEN:
 4 Q. Do you know what's going on in Nova Scotia in
 5 particular with that?

6 MS. TURNER:
 7 A. No, I don't have a great visibility of the
 8 level of aviation expertise within those 35
 9 staff or contracted, but I do know that in the
 10 industry sectors that I've worked in that
 11 aren't primarily aviation, so other industry,
 12 and it's very interesting in our company's
 13 history, we've been going for nearly 14 years,
 14 about 40 percent of our work is outside the
 15 aviation industry. That's generally come from
 16 these industries that engage with aviation,
 17 but aren't necessarily aviators, that want
 18 advice or some level of connectivity, and
 19 there generally needs to be some trigger to
 20 motivate that inquiry to a specialty degree in
 21 that. Sometimes it's just through self-
 22 inquiry, sometimes it's through the risk - the
 23 enterprise risk management approach. The case
 24 of Integral Energy that I wrote up as a case
 25 study or we compiled in our report, it was

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1 interesting when they recognized when they
 2 didn't have the aviation expertise, it was
 3 actually through their enterprise risk
 4 assessment or their corporate risk profile the
 5 aviation risk associated with their
 6 contracting with #4 on their corporate risk
 7 list. We've seen accidents, you know, with
 8 mining executives travelling out, contracting
 9 aviation assets, and aircraft crashing and
 10 taking out the whole Board of Directors, and a
 11 case just happened in Africa a couple of weeks
 12 ago, and so those type of aviation risks are
 13 not unusual to be on the corporate risk
 14 profile of these other industry sectors. So
 15 there's many, many trigger points as to where
 16 this can take place, but I think at the end of
 17 the day it doesn't matter how you get it, but
 18 if you have a responsibility for oversight of
 19 the specialty area, you do need some level of
 20 specialty advice, knowledge, or expertise.

21 MS. O'BRIEN:
 22 Q. Okay. So one of the things that I think this
 23 Commission has been dealing with in terms of
 24 when they have been defining the issues list
 25 and what, in particular, the Commissioner

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1 feels he is empowered to do here, one of the
 2 issues that's coming up is this is obviously
 3 an Inquiry that's been called by the C-NLOPB
 4 and where what - once you get into areas that
 5 are under the auspices of Transport Canada,
 6 which this is an Inquiry about helicopter
 7 safety -
 8 MS. TURNER:
 9 A. Yes.
 10 MS. O'BRIEN:
 11 Q. And, of course, helicopters are under the
 12 jurisdiction of Transport Canada. You know,
 13 how far this regulator can go when you're
 14 going to butt up against Transport Canada, and
 15 one of the issues that has been discussed is
 16 whether the C-NLOPB would have the ability to
 17 put in requirements, whether it be, you know,
 18 sort of checklist based requirements or a more
 19 prescriptive approach that really go above and
 20 beyond requirements that are already there by
 21 Transport Canada. So to bring that to a more
 22 specific example, say, for flight crew
 23 survival suits or safety equipment -
 24 MS. TURNER:
 25 A. Uh-hm.

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1 MS. O'BRIEN:
 2 Q. So can you tell us when you've looked at these
 3 other regulatory regimes, other parts of the
 4 world where they're clearly doing a little bit
 5 more communication, I would say, than we are
 6 here in Canada, certainly in this jurisdiction
 7 in Canada between the aviation regulator and
 8 the oil regulator, are you seeing that kind of
 9 approach where they're actually - you know,
 10 the oil regulators are actually going in there
 11 and putting in additional requirements over
 12 what the aviation regulator is?
 13 MS. TURNER:
 14 A. Yeah, sure. There's two parts to my answer.
 15 The answer is "yes", we are seeing that, and
 16 not just in the jurisdiction studied here,
 17 it's a move in many industries. If you look
 18 at the mining industry here in Canada and the
 19 standards for aviation that are set, they do
 20 exceed Transport Canada's requirements.
 21 They're the customer. They contract aviation
 22 service, they can set standards and decide to
 23 contract or not contract, you know, based on
 24 those.
 25 In terms of how you achieve that, whether

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1 you just write it into your rules and expect
 2 for it to happen, I think there's a degree of
 3 stakeholder understanding that needs to take
 4 place. There's a degree of relationships that
 5 need to be created if they don't already
 6 exist, and there's definitely a need for
 7 communication and interaction, and you can see
 8 that in the types of working groups or
 9 committees or forums that some of these other
 10 jurisdictions have actually set up, so that
 11 they have an environment in which to bring
 12 these issues to the table and get that
 13 resolution. So to answer your question, it
 14 really is based on that relationship,
 15 stakeholder understanding and interaction.
 16 Whether you prescribe that and write it into
 17 your rules and have that actually physically
 18 implemented is an area for consideration, and
 19 there's nothing stopping any customer of an
 20 aviation service setting standards that are
 21 beyond compliance. I think where you would
 22 actually butt heads is if the customer had a
 23 lower expectation and weren't willing to pay
 24 for the air operating certificate holder to
 25 meet their obligations and whether it was cost

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1 effective. Now that's a different discussion.
 2 MS. O'BRIEN:
 3 Q. And that's really not what I'm talking about
 4 here. Okay. All right, thank you very much
 5 for those comments. I'll just finish by
 6 saying, you know, one of the - there seemed to
 7 me at times a disconnect here between who we
 8 consider the - who are the offshore workers in
 9 this province, and the focus really seems to
 10 be on the people who are working for the oil
 11 companies and the people who are providing
 12 direct services to the oil companies, very
 13 distinct from the people who are working with
 14 Cougar.
 15 MS. TURNER:
 16 A. Um.
 17 MS. O'BRIEN:
 18 Q. And that distinction, again I think we see
 19 that in how this survey was developed, that it
 20 really didn't get to finding out the views of
 21 the aircrew who are working day in and day out
 22 in the offshore here. I don't know if you
 23 have any further comment on that point. I'll
 24 certainly hear it if you do.
 25 MS. TURNER:

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1 A. Yeah, and that is a fair comment, and as I
 2 mentioned before, I think that body of work
 3 would be very, very quick and simple to do. I
 4 mean, this survey itself took 10 to 15
 5 minutes, and as you implied, it's not a large
 6 workforce out there at the heliport, and
 7 certainly that survey is there and available
 8 and I'd welcome the opportunity to include the
 9 group of Cougar employees into that rota or
 10 aspect. It might actually show some
 11 interesting results to draw the comparisons.

12 MS. O'BRIEN:
 13 Q. Thank you very much. Those are all my
 14 questions, Commissioner.

15 COMMISSIONER:
 16 Q. Before you go, Ms. O'Brien, the point you are
 17 raising about the pilots and the people who
 18 work for Cougar is a very interesting one.
 19 The focus really of the Inquiry so far has
 20 really been on other areas, there is no
 21 question about that, particularly, of course,
 22 on the people whom you mentioned who work for
 23 the oil companies offshore, and the survey and
 24 the terms of reference of the survey were
 25 really designed to get the opinions of those

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1 who travel offshore; in other words,
 2 passengers. You make the point, and it's a
 3 good point, about the employees of Cougar,
 4 whether they be pilots or whomsoever, and
 5 having heard that point and some of the points
 6 made by Mr. Harris, I will certainly undertake
 7 to have a good look at the terms of reference
 8 and the issues because we're not talking about
 9 a huge group, and it would be quite easy for
 10 us if I feel after taking advice that it's
 11 proper to do so, it would be fairly simple, I
 12 think, to get the views of Cougar employees.
 13 So I'll just leave that with you, and I will
 14 go into that.

15 MS. O'BRIEN:
 16 Q. Thank you very much, Commissioner.

17 COMMISSIONER:
 18 Q. Now, Ms. Strickland, having heard the
 19 evidence, have you any questions at this
 20 stage?

21 MS. STRICKLAND:
 22 Q. No, nothing arising.

23 COMMISSIONER:
 24 Q. Thank you, and the same would apply to other
 25 members of the - all right, thank you, Ms.

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1 Crosbie, C-NLOPB.
 2 MS. KIMBERLEY TURNER - EXAMINATION BY MS. AMY CROSBIE:
 3 MS. CROSBIE:
 4 Q. Good afternoon, Ms. Turner. I'm Amy Crosbie,
 5 and I represent the Newfoundland and Labrador
 6 - Canada Newfoundland and Labrador Offshore
 7 petroleum Board, and I only have a few
 8 questions, a lot of the stuff has been
 9 canvassed. You had mentioned there were
 10 several themes in your comparison of the
 11 regulatory regimes, and I think you identified
 12 three of them as the separation of safety from
 13 other aspects of the regulator, the shift to
 14 performance-based regulation, and risk-based
 15 approach.

16 MS. TURNER:
 17 A. Uh-hm.

18 MS. CROSBIE:
 19 Q. Were they the three that -

20 MS. TURNER:
 21 A. There were a couple of others, but they were
 22 certainly the three that I covered. Would you
 23 like me to recap on some of the others?

24 MS. CROSBIE:
 25 Q. If there were others, yes.

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1 MS. TURNER:
 2 A. Sure. You're correct with those first three.
 3 The fourth one which was brought up by Ms.
 4 O'Brien was the interaction with the aviation
 5 community and with the range of stakeholders.
 6 The fifth one was safety assurance and some of
 7 the innovative practises for that continuum
 8 from audit inspection all the way through to
 9 the enforcement regime to achieve improved
 10 safety culture, and the last one was adopting
 11 a consultative approach, which really does go
 12 hand in hand with the interaction with the
 13 aviation community, but adopting a
 14 consultative approach is actually a
 15 philosophical way in which you would undertake
 16 your work. So they were the key themes that
 17 came out, and then there was just a couple of
 18 highlights of specific practise.

19 MS. CROSBIE:
 20 Q. And I just have a couple of questions that
 21 covers off on those themes.

22 MS. TURNER:
 23 A. Sure.

24 MS. CROSBIE:
 25 Q. With the consultative approach, which kind of

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1 goes with the interaction with the aviation
 2 community, you had talked about in the United
 3 States the helicopter group that you have some
 4 involvement in.
 5 MS. TURNER:
 6 A. Uh-hm.
 7 MS. CROSBIE:
 8 Q. I was just wondering if the oil operators in
 9 the United States were part of that group, or
 10 was that really just aviation?
 11 MS. TURNER:
 12 A. Yeah, the oil operators are represented in
 13 that group, but I must say it's heavily - not
 14 stacked, because it's actually a voluntary
 15 committee, and there's other people that sit
 16 on and have formal roles to administer the
 17 committee. It really does have a very large
 18 aviation operator presence, but it does have
 19 that interaction with the other players.
 20 MS. CROSBIE:
 21 Q. And I think when you were talking about
 22 Australia, and I may have gotten this wrong,
 23 but I think you said they are just emerging
 24 and they have yet to put together that sort of
 25 forum?

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1 MS. TURNER:
 2 A. Yeah. I think it's based on a number of
 3 things. Number one is the size. It's a small
 4 industry at the moment. Number two is the
 5 size of the country. The oil fields are
 6 spread on, you know, east, west, north and
 7 south, and the helicopter community in
 8 Australia is actually - although it's about 3
 9 or 4 percent of the global helicopters, it's
 10 actually quite a small part of the aviation
 11 industry that don't get together that
 12 regularly. When they do get together, it's
 13 not necessarily in sub industry sectors like
 14 the air medical or the law enforcement or the
 15 offshore, as you'll see in the States, purely
 16 based on the size. It's the whole helicopter
 17 community get together and talk about topics,
 18 and then there's sub kind of discussion that
 19 take place, but there's certainly not that
 20 same level of forum or structure in Australia
 21 that I'm aware of.
 22 MS. CROSBIE:
 23 Q. And if you were going to compare it to the
 24 Newfoundland jurisdiction, we would be
 25 significantly smaller here?

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1 MS. TURNER:
 2 A. Yeah, and I think there is - one key
 3 difference is you don't necessarily have a
 4 number of helicopter operators, you have one,
 5 and so where there is a number of operators
 6 all servicing the same industry, obviously
 7 there's a need for those stakeholders groups
 8 to talk. Where you've got one helicopter
 9 operator, it's almost the reverse. You've got
 10 one helicopter operator and multiple oil
 11 companies, as opposed to maybe one or two oil
 12 companies with multiple helicopter providers.
 13 So it really just is the inverse, and is
 14 worthy of looking at what's practical, what's
 15 realistic, and one of the greatest benefits of
 16 that interaction is just to get the sharing of
 17 practise, knowledge, and standards, and it's
 18 amazing that peer review where people really
 19 do benchmark themselves and say, oh, they're
 20 doing that over there; oh, we haven't quite
 21 got onto that yet, we'll have a look at that,
 22 and everyone has got their own emerging
 23 practise as to what they focus on and what
 24 they're good at. And so to have some type of
 25 forum here in this industry, whether or not

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1 it's with yourselves or whether it's with, you
 2 know, other like-minded organizations around
 3 the world, the aim is really just to get out
 4 there and share practice so that you know
 5 what's going on.
 6 MS. CROSBIE:
 7 Q. And so it would be very similar to, you know,
 8 my client and their interaction with other
 9 regulators.
 10 MS. TURNER:
 11 A. Absolutely.
 12 MS. CROSBIE:
 13 Q. A very close relationship with some of these
 14 regulators that you have canvassed.
 15 MS. TURNER:
 16 A. Definitely.
 17 MS. CROSBIE:
 18 Q. So they can draw on their knowledge, as
 19 opposed to have their own format?
 20 MS. TURNER:
 21 A. Definitely and the question is whether or not
 22 those relationships and how you draw on that
 23 expertise is informal or formal. You know,
 24 any professional in their job that's
 25 interested in doing more than just going to

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1 work and getting paid will connect those
 2 networks and will draw on the information. So
 3 that's, I guess, the informal buddy network.
 4 Whether or not there's been a formal forum and
 5 whether that's needed to facilitate that
 6 dialogue and discussion, needs to be sorted
 7 through.
 8 MS. CROSBIE:
 9 Q. And with respect to the interaction
 10 specifically with the aviation community in
 11 Canada, we'd be talking about Transport Canada
 12 -
 13 MS. TURNER:
 14 A. Yes.
 15 MS. CROSBIE:
 16 Q. You did just indicate that you didn't ask the
 17 Nova Scotia Board whether they had a formula
 18 or not, you just didn't find one in your
 19 research.
 20 MS. TURNER:
 21 A. Yeah, as I mentioned our research was really
 22 table top analysis, what was available and so
 23 there was nothing that was obvious, but that's
 24 not to say that we, you know, haven't missed
 25 it if it is underway.

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1 MS. CROSBIE:
 2 Q. Or and again you also said that it doesn't
 3 have to be formal, an informal communication
 4 would serve the same purpose?
 5 MS. TURNER:
 6 A. It would serve the purpose of sharing
 7 information, benchmarking, if, like for
 8 instance if you're referring to a MOU, the
 9 beauty of a MOU is really to make clear the
 10 lines of regulatory accountability to the
 11 industry of where does the jurisdiction start
 12 and end. And this is actually the case in
 13 many countries around the world with
 14 occupational health and safety. Does OHS come
 15 under the jurisdiction of the aviation
 16 regulator or the workplace OHS agency? And
 17 where does the workplace start and end and,
 18 like for instance manual handling as such and
 19 who actually has jurisdiction over manual
 20 handling of patients being loaded on trollies
 21 into the back of a helicopter. Is it the OHS
 22 regulator or is it the aviation regulator that
 23 actually certifies the patient trolley where
 24 the person, you know, gets put in, so it's
 25 really important, I think, where there are

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1 either a lack of clarity to the general mass
 2 as to who does what or whether or not there's
 3 things where there is this handover point to
 4 actually have some type of accountability
 5 matrix so people know who does what.
 6 MS. CROSBIE:
 7 Q. I take it that's what you, on page 55 of your
 8 paper, I'm assuming that when you state
 9 collaboration between the C-NLOPB and
 10 Transport Canada in order to provide
 11 guidelines or legislation would enable the
 12 offshore helicopter operators to improve and
 13 validate their existing regimes. And I assume
 14 that's what you mean?
 15 MS. TURNER:
 16 A. Yeah.
 17 MS. CROSBIE:
 18 Q. The other issue that you had covered as one of
 19 the themes was the shift to performance based
 20 regulations.
 21 MS. TURNER:
 22 A. Uh-hm.
 23 MS. CROSBIE:
 24 Q. And I just want to confirm that when you were
 25 doing this paper, you weren't actually

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1 comparing the regimes to pick one over the
 2 other or, you know, you were just simply
 3 laying out what each is doing?
 4 MS. TURNER:
 5 A. That's right, that's right.
 6 MS. CROSBIE:
 7 Q. And on page 51 of your paper, Section 7.4,
 8 Exhibit 210.
 9 MS. TURNER:
 10 A. Uh-hm.
 11 MS. CROSBIE:
 12 Q. Page 51. And Ms. Fagan actually drew you to
 13 this in your direct this morning. You were
 14 referring to the drilling and petroleum
 15 regulations.
 16 MS. TURNER:
 17 A. Uh-hm.
 18 MS. CROSBIE:
 19 Q. They are the new regulations that Nova Scotia
 20 Board, the Newfoundland Board and the National
 21 Energy Board -
 22 MS. TURNER:
 23 A. Uh-hm.
 24 MS. CROSBIE:
 25 Q. And you would agree that they have shifted to

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1 a performance based regulatory regime in these
 2 new draft regulations?
 3 MS. TURNER:
 4 A. Yeah, that's a message that came out in the
 5 research that there was an intent to shift.
 6 Obviously here running regulations is a long
 7 process and how you then implement that is
 8 another thing, but certainly that intent was
 9 consistent with where other jurisdictions have
 10 gone or are going.
 11 MS. CROSBIE:
 12 Q. And I think as you pointed out, Norway,
 13 they've done it over several years.
 14 MS. TURNER:
 15 A. Yeah.
 16 MS. CROSBIE:
 17 Q. It's a process as opposed to mark one off and
 18 turn the other way?
 19 MS. TURNER:
 20 A. Yeah, absolutely and I think one of the things
 21 that's evident in all of the research, with
 22 all of the jurisdiction, is there's an intent
 23 to go that way. I think there's a vast
 24 difference in the level of understanding of
 25 what performance based regulation is and

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1 there's a lot of work that has to be done to
 2 then translate the philosophy and the concept
 3 firstly into regulations and secondly into
 4 practice where your organizational structure
 5 follows suit, the workforce capability
 6 planning and the skillsets, you're employing
 7 people that actually have that evaluation
 8 process based approach as opposed to industry
 9 only base knowledge, so there's a lot that
 10 goes with it and as you say, it's not a
 11 simple, switch one, pick another. It's not an
 12 alternate or it's a grade of a continuum.
 13 MS. CROSBIE:
 14 Q. And in this first bit here you were talking
 15 about support craft and you drawing attention,
 16 I think to it because that's where helicopters
 17 would be referenced, it's considered support
 18 craft. And I just wanted to confirm with you
 19 that this is an example of a more goal
 20 oriented approach in that the regulations
 21 state that the operator shall ensure that it's
 22 a safe operation of a support craft, a sort of
 23 a very board statement and so it's up to the
 24 operator to add that little check list as to
 25 how they're going to ensure it's safe.

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1 MS. CROSBIE:
 2 Q. Yeah, and absolutely, that's the type of
 3 themed approach, the supporting material that
 4 goes with that or how that is checked under
 5 your assurance regime is probably where the
 6 detail comes into play and whether those
 7 procedures match the intent of the regulation
 8 is where alignment needs to take place.
 9 MS. CROSBIE:
 10 Q. And that would be in, what we've been
 11 referring to as safety case, which in our
 12 jurisdiction has got a safety plan -
 13 MS. TURNER:
 14 A. Yes, that's right.
 15 MS. CROSBIE:
 16 Q. Or the same thing, you would likely see that
 17 then flow through the safety plan.
 18 MS. TURNER:
 19 A. Yeah.
 20 MS. CROSBIE:
 21 Q. Okay.
 22 MS. TURNER:
 23 A. There's a lot of--just on that point, there's
 24 a lot of education that needs to take place
 25 for those that write regulation, those that

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1 have the responsibility for conduction the
 2 inspections, those that have the
 3 responsibility for developing the procedures
 4 that are given to the inspectors and I think
 5 that is a key area that is often overlooked,
 6 who writes the methodology that's given to the
 7 inspectors. Often there's a disconnect with
 8 the writers of the regulation and the
 9 philosophical view from the top and the
 10 practical tools of how that works, and in
 11 those regimes that haven't quite connected,
 12 the philosophy and the practice, generally
 13 when you look at the cause and factors as to
 14 why, you can pinpoint that, that the tools are
 15 compliance based, but the regs are this
 16 process based approach.
 17 MS. CROSBIE:
 18 Q. When you did your review of the Nova Scotia
 19 Board, I just wanted to clarify one thing at
 20 page 46. 7.1 is the overview.
 21 MS. TURNER:
 22 A. Yes.
 23 MS. CROSBIE:
 24 Q. You've indicated in 7.1 that the Nova Scotia
 25 Board is responsible for ensuring the offshore

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1 operations are conducted safely and in a
 2 manner which promotes the environment and the
 3 Board also has the responsibility for managing
 4 offshore resources, issuing licenses for
 5 offshore exploration and development and
 6 collecting and distributing resource data.
 7 And that's just your overview of what the Nova
 8 Scotia Board does.
 9 MS. TURNER:
 10 A. Yeah, based on the research and publicly
 11 available information.
 12 MS. CROSBIE:
 13 Q. Right, and we all know that the Nova Scotia
 14 Board and the Newfoundland Board are -
 15 MS. TURNER:
 16 A. Fairly close.
 17 MS. CROSBIE:
 18 Q. Fairly close. I just wanted to ask you about,
 19 there's just one sentence in Section 7.5 that
 20 I just wanted to clarify.
 21 MS. TURNER:
 22 A. Sure.
 23 MS. CROSBIE:
 24 Q. In the first paragraph, the last line, you're
 25 talking about -

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1 MS. TURNER:
 2 A. This is on page 52?
 3 MS. CROSBIE:
 4 Q. Page 52, yes.
 5 MS. TURNER:
 6 A. Yes.
 7 MS. CROSBIE:
 8 Q. The sentence reads, "It would also provide
 9 some separation of the potentially conflicting
 10 priorities of ensuring the safety and health
 11 of the offshore workers, while simultaneously
 12 promoting continued offshore development."
 13 And I'm just a bit concerned about your use of
 14 the word "promoting". That implies that the
 15 Nova Scotia Board, because that's who we're
 16 talking about here -
 17 MS. TURNER:
 18 A. Uh-hm.
 19 MS. CROSBIE:
 20 Q. Is promoting offshore development, as opposed
 21 to in your overview, you, I think, accurately
 22 say they manage the offshore resource and
 23 there is a difference between managing and
 24 promoting -
 25 MS. TURNER:

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1 A. Yes.
 2 MS. CROSBIE:
 3 Q. And I'm just wondering if by saying the word
 4 "promoting" you actually meant it in the sense
 5 of promoting?
 6 MS. TURNER:
 7 A. That would be fair.
 8 MS. CROSBIE:
 9 Q. Okay, so it is that you did actually mean
 10 managing the offshore.
 11 MS. TURNER:
 12 A. Yes, that would be fair and as you mentioned,
 13 you know, you're closer to this regulator than
 14 we are and certainly that would be a fair
 15 assumption.
 16 MS. CROSBIE:
 17 Q. And the last little bit I want to touch on is
 18 the idea of the separate safety organization
 19 because that obviously, in some regimes they
 20 have shifted towards that.
 21 MS. TURNER:
 22 A. Yes.
 23 MS. CROSBIE:
 24 Q. And you have made some comments with respect
 25 to the Nova Scotia Board on that.

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1 MS. TURNER:
 2 A. Uh-hm.
 3 MS. CROSBIE:
 4 Q. On Page 55 and this is your overview section,
 5 your conclusion section.
 6 MS. TURNER:
 7 A. Yes.
 8 MS. CROSBIE:
 9 Q. The second paragraph you indicate, "The
 10 Norwegian Petiolate Safety Authority has
 11 benefited significantly from the separation of
 12 safety and licensing bodies." My only
 13 question there would be did you do any sort of
 14 review of that--of their regime prior to the
 15 separation? Because you do make the comment
 16 that they benefited from the separation, but
 17 the paper doesn't give us any indication of
 18 what that benefit might have been, if there
 19 was one.
 20 MS. TURNER:
 21 A. Yeah. One of the key benefits or changes and
 22 it's really a key change that we picked up in
 23 our research which I believe is a benefit, is
 24 this increased focus on safety, the increased
 25 transparency, the public nature of the work as

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1 opposed to it being restricted and that really
 2 has matched the shift in the bolstering up of
 3 the safety agency and it might be a discussion
 4 worthy of talking through with those that have
 5 visited Norway.
 6 MS. CROSBIE:
 7 Q. And in some of that, I think you had also
 8 indicated in Australia by simply adding the
 9 word safety to that organization, it gave it
 10 more transparency, so in some respect is that
 11 sort of a perception as an added assurance, I
 12 guess, to -
 13 MS. TURNER:
 14 A. Yeah, one of the other areas that you can look
 15 at and I won't go into it in my response, but
 16 we did include the organizational charts on
 17 purpose for each of these organizations and so
 18 you can draw your, I guess, conclusions from
 19 the safety setup and infrastructure and size
 20 and even the titles and the scope and who
 21 reports to who, there's a lot that goes into
 22 that safety infrastructure. It's not just the
 23 numbers of people, it's the regulatory regime
 24 which we have talked about at length, it's the
 25 approach to that regime, but it's also the

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1 structure of where people sit, where they
 2 report, how that takes place and also all the
 3 way through to the scope of their surveillance
 4 or their assurance or audit regime that takes
 5 place. And if you look at the organizational
 6 chart of Australia, I think you will find it's
 7 quite heavily weighted in those roles, where
 8 some of the others may not necessarily have
 9 such an emphasis.
 10 MS. CROSBIE:
 11 Q. In the next paragraph you actually say
 12 specifically with respect to the Nova Scotia
 13 Board what is evident is the need to introduce
 14 a clearer separation of the safety and
 15 licensing roles of the Board. From my point
 16 it is not so evident, my point of view it's
 17 not so evident and so I'm just wondering why
 18 you--what made you make the statement that it
 19 is evident that you need a clearer
 20 distinction.
 21 MS. TURNER:
 22 A. Yeah, sure, and I think it probably goes hand
 23 in hand with the sentence just prior to the
 24 one that you've read out, is the regulatory
 25 regime in Nova Scotia is under reform, so at

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1 this point, it is difficult to draw any
 2 particular valuable conclusions and so the
 3 level of depth that we were able to get to
 4 with a table-top review certainly wasn't
 5 commensurate with the level of depth we were
 6 able to achieve in the UK, the US or
 7 Australia.
 8 MS. CROSBIE:
 9 Q. And the reform that you're talking about is
 10 the new prescriptive regulations.
 11 MS. TURNER:
 12 A. Yes.
 13 MS. CROSBIE:
 14 Q. But as well the occupational health and safety
 15 -
 16 MS. TURNER:
 17 A. Correct.
 18 MS. CROSBIE:
 19 Q. Okay.
 20 MS. TURNER:
 21 A. And the whole regime.
 22 MS. CROSBIE:
 23 Q. Am I fair in saying that it's not necessarily
 24 the structure needs to be reformed, it's just
 25 that right now some of the working papers are

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1 being reformed and so you're not sure how it's
 2 all going to land.
 3 MS. TURNER:
 4 A. Well that's right and when you've got draft
 5 regulations that haven't quite been, you know,
 6 approved or they're still in the consultative
 7 phase, I think it's too far to jump to exactly
 8 how they're going to be implemented and as you
 9 imply whether or not that would warrant a
 10 change in the organizational structure or
 11 size, et cetera.
 12 MS. CROSBIE:
 13 Q. Because I think the top of the next page, 56,
 14 you indicate what has been demonstrated in
 15 several examples is the benefit of having a
 16 separate body or division that is responsible
 17 for promoting and enforcing safety.
 18 MS. TURNER:
 19 A. Yes.
 20 MS. CROSBIE:
 21 Q. Certainly from my client's standpoint we
 22 believe we have a separate safety division and
 23 so can I take it from that particular sentence
 24 that it does not actually have to be a
 25 separate agency, a separate entity, you would

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1 just want to see a good organizational chart
 2 that shows you that it is a separate division.
 3 MS. TURNER:
 4 A. Yeah, it comes through to some of those traits
 5 that I was talking about before is whether or
 6 not the structure is appropriate to give that
 7 emphasis on safety, whether the composition of
 8 the staffing model actually puts the emphasis,
 9 you know, in the area that matches the
 10 regulatory approach. The other thing is the
 11 reporting of where does the safety function
 12 report, does it have access right at the top
 13 level or is there a competing, because of the
 14 level within the organization or the access to
 15 reporting, that maybe sometimes the safety
 16 information can get lost and as I mentioned
 17 right up front when Ms. Fagan outlined the
 18 limitations is we didn't do an equivalent
 19 table-top review on the C-NLOPB and certainly
 20 this type of work might be valuable and this
 21 is the one paper that I would have loved to
 22 have gone into more depth because you can just
 23 imagine how valuable the comparative charts
 24 would be, you know, of number of aircraft,
 25 number of regimes, who does what, the safety

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1 structures, even just getting into this
 2 separation of safety and whether they have
 3 independence. Now how that independence can
 4 be created, whether it's in the same
 5 organizational chart or a separate agency, I
 6 think that's, you know, up for grabs and
 7 really needs to be looked at for the context
 8 of the province or the nation or the structure
 9 and the industry itself, but certainly some of
 10 its key traits and characteristics, reporting
 11 independence, the composition of structure,
 12 the role and all the way through to some of
 13 those things I was talking about in terms of
 14 the practical tools that are given to the
 15 people that are out there doing the checking
 16 function.
 17 MS. CROSBIE:
 18 Q. And when you did your review of the Nova
 19 Scotia Board, you did include the chart, but
 20 did you look at the reporting structure for
 21 the safety officer in that regime?
 22 MS. TURNER:
 23 A. Not in a lot of detail.
 24 MS. CROSBIE:
 25 Q. Certainly my client has already given evidence

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1 with respect to that, so -
 2 MS. TURNER:
 3 A. Yes.
 4 MS. CROSBIE:
 5 Q. Those are all of the questions I have, thank
 6 you.
 7 COMMISSIONER:
 8 Q. One thing that occurs to me, Ms. Turner, that
 9 we've not mentioned New Zealand and if I
 10 remember correctly, New Zealand has five
 11 installations which would be something
 12 comparable to the size of our offshore. Are
 13 you able to tell us what the New Zealand
 14 structure is or if you can't, and I can
 15 understand that, you can find out for us and I
 16 would share with -
 17 MS. TURNER:
 18 A. Yes, sure. Commissioner, we didn't include
 19 that in the scope of research purely just
 20 because of time and there's probably a couple
 21 of others, as Mr. Pritchard mentioned that may
 22 be worthy of looking at and I'd be happy to
 23 explore that further.
 24 COMMISSIONER:
 25 Q. All right, yes, I certainly would like to

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1 hear, New Zealand is so comparable in size it
 2 might be interesting to know. So if you
 3 wouldn't mind doing that and letting -
 4 MS. TURNER:
 5 A. Sure.
 6 COMMISSIONER:
 7 Q. And ladies and gentleman, as soon as I hear,
 8 you will hear from me. All right then,
 9 anything arising Ms. Fagan that you would like
 10 to wrap up with or ask?
 11 MS. FAGAN:
 12 Q. Not from the inquiry counsel's perspective,
 13 but to thank Ms. Turner, it's quite a bit of
 14 work and I believe very valuable even with the
 15 limitations that she'd like to research
 16 further, but at some point we have to move on
 17 with getting the report done. So that's it
 18 for this examination. We're supposed to take
 19 our break at 3:30, however it's 3:15, so if
 20 it's convenient, we can break now -
 21 COMMISSIONER:
 22 Q. I think so, I think Mr. Roil indicated to me
 23 that you'd like a little break of ten or--well
 24 fifteen minutes say to get Ms.--so that Dr.
 25 could become ready. Well Ms. Turner,

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1 thank you very much.
 2 MS. TURNER:
 3 A. Thank you, Commissioner.
 4 COMMISSIONER:
 5 Q. Not only for this report but all of the work
 6 you've done and the guidance on aviation
 7 matters or the last year, it's appreciated.
 8 MS. TURNER:
 9 A. Thank you.
 10 COMMISSIONER:
 11 Q. Thank you, we'll take fifteen minutes.
 12 (RECESS)
 13 COMMISSIONER:
 14 Q. Okay, Mr. Roil.
 15 ROIL, Q.C.:
 16 Q. Thank you, Commissioner. I don't need to
 17 introduce to you Dr. Coleshaw, but to those of
 18 you in the room and to those that are watching
 19 by one of the media, I would have great
 20 pleasure to introduce Dr. Susan R.K. Coleshaw
 21 who is from Aboyne, Aberdeenshire, Scotland.
 22 I have to say to you that it was interesting
 23 that when we travelled with you in the North
 24 Sea, every where we went people said you
 25 should talk to Dr. Coleshaw and so we did. So

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1 Dr. Coleshaw we're delighted to have you with
 2 us today. For the purposes of the record, we
 3 have three exhibits which we would ask to have
 4 put into evidence, Exhibit P00212 which is Dr.
 5 Coleshaw's curriculum vitae and P00213 which
 6 is the report that was commissioned by or for
 7 us by Dr. Coleshaw and finally Exhibit P00214
 8 which is a PowerPoint presentation that Dr.
 9 Coleshaw prepared in order to bring the report
 10 to us today and so in my questions for her, I
 11 will not be referring to the report itself,
 12 others may wish to do so, as was done with
 13 Kimberley Turner's, but I will take her
 14 briefly through her C.V. and also through the
 15 PowerPoint presentation. First of all I would
 16 ask that you would affirm Dr. Coleshaw please.
 17 DR. SUSAN ROSEMARY KATHERINE COLESHAW (AFFIRMED)
 18 COMMISSIONER:
 19 Q. And the exhibits will be entered.
 20 EXHIBITS P00212, P00213 AND P00214 ENTERED INTO EVIDENCE
 21 REGISTRAR:
 22 Q. The exhibits are entered.
 23 ROIL, Q.C.:
 24 Q. Now, Dr. Coleshaw, I'm a long way away from
 25 you and I have ears that don't work as well as

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1 they used to, so I'm going to ask you to speak
 2 up and speak to me and then hopefully
 3 everybody in the room will hear. The subject
 4 matter, Commissioner, that I am going to ask
 5 for Dr. Coleshaw to give us opinion of it is
 6 on, is defined by she and I, I guess, as being
 7 personal protective equipment and human
 8 factors relating to helicopter escape and
 9 evacuation. And so, Dr. Coleshaw, I would ask
 10 you now perhaps to take us through some of the
 11 aspects of your education, your work
 12 experience, your writings, your training and
 13 so on that would have relevance to that
 14 general subject and why we should consider you
 15 as a person qualified to give us opinion
 16 evidence.
 17 DR. COLESHAW:
 18 A. Thank you. Well my background, I started off
 19 as a thermal physiologist, so my first degree
 20 was in physiology and I then went on to do a
 21 Ph.D in University of London, looking at some
 22 of the causes and consequences of hypothermia
 23 in water and that was related to problems with
 24 North Sea divers at that time. I spent ten
 25 years in academic research, both University of

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1 London and laterally, University of Aberdeen
 2 and that was primarily human temperature
 3 regulation and aspects of that, including
 4 hypothermia. I moved from there to a position
 5 at the RGIT Survival Centre in Aberdeen which
 6 was primarily offshore training emergency
 7 spokestraining centre, but I was working
 8 within a separate research and equipment
 9 testing division at RGIT. By all that, I was
 10 undertaking research projects and that
 11 included aspects such as helicopter underwater
 12 escape, emergency response procedures,
 13 liferaft reliability, topics of that nature,
 14 and we also had an equipment test laboratory
 15 primarily carrying out approvals on life
 16 jackets and immersion suits, and some other
 17 association equipment and the laboratory was
 18 accredited during the time that I was there.
 19 ROIL, Q.C.:
 20 Q. What sort of time period are we speaking of
 21 now, what year or years?
 22 DR. COLESHAW:
 23 A. '91 to 2000 I spent at RGIT. In 2000, I left
 24 RGIT and became an independent consultant at
 25 that time, so for the last ten years, I've

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1 been working as an independent and I think
 2 probably the best way to describe my work is
 3 to look at some of contracts I've undertaken
 4 during that time and who the work has been
 5 for, which is quite wide ranging, say working
 6 for offshore operators and doing quite a lot
 7 of work, looking at equipment compatibility or
 8 health and safety -
 9 ROIL, Q.C.:
 10 Q. What kinds of equipment and what compatibility
 11 issues, for example?
 12 DR. COLESHAW:
 13 A. Well that is again primarily life jackets and
 14 immersion suits, but our health and safety
 15 executive brought out guidance in 2002 looking
 16 to ensure that the equipment used offshore,
 17 particularly for abandonment, but also
 18 covering helicopter transport side, that life
 19 jackets or with immersion suits were
 20 compatible with each other, but also
 21 compatible with the other emergency equipment
 22 that might be used in association with, say
 23 during an evacuation, if you have to use a
 24 dissent system, an escape shoot, liferafts,
 25 the life boats, that that life jacket suit

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1 combination didn't actually interfere with the
 2 performances of these other systems. And
 3 those assessments have involved the workforce,
 4 it was quite a move to involve the workforce
 5 in decision making in these two areas, so when
 6 we done trials on the equipment, that's
 7 primarily been with workforce members as the
 8 test subjects. Again on the equipment side, I
 9 done a set amount of work for some of the
 10 equipment manufacturer's companies
 11 manufacturing helicopter suits, either in
 12 terms of measuring human performance in their
 13 development phase or helping them with,
 14 through the approval process and sort of
 15 consultancy relating to the process of
 16 approval in different jurisdictions. Also
 17 quite a bit of work with the Civil Aviation
 18 Authority, at the time I became an independent
 19 we were part way through the project looking
 20 at capsizing, inversion of helicopters, I
 21 completed that work as an independent and then
 22 followed on with a couple of projects, looking
 23 at helicopter emergency breathing systems and
 24 one of those is ongoing right now. And so
 25 that's very cogent to the questions that I'm

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1 being looked at today. I think probably one
 2 of the other significant projects was some
 3 work I did a few years back for--well
 4 instigated by Oil and Gas UK, was actually
 5 funded by BISO, the training organization.
 6 ROIL, Q.C.:
 7 Q. Oil and Gas UK is the association of oil
 8 operators in that region?
 9 DR. COLESHAW:
 10 A. Operators, but actually including a wider
 11 group now, the old ICAO was just operators and
 12 Oil and Gas UK has a slightly wider group and
 13 so it includes some of the contractors, I
 14 think, as well within that group, I think I'm
 15 correct in saying that.
 16 ROIL, Q.C.:
 17 Q. By contractors, that would be like the rig
 18 operators and perhaps some of the -
 19 DR. COLESHAW:
 20 A. Yeah. That work, well OPITO would only put
 21 out a proposal at that time to include exits
 22 into the helicopter underwater escape
 23 training.
 24 ROIL, Q.C.:
 25 Q. Now OPITO is an expression that hasn't been

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1 used an awful lot here, it was quite awhile
 2 ago, but that's a standards organization.
 3 DR. COLESHAW:
 4 A. That's a standards organization, yes.
 5 ROIL, Q.C.:
 6 Q. Just to put it in context for people who are
 7 hearing us for the first time, so they
 8 understand.
 9 DR. COLESHAW:
 10 A. So that they have responsibility for the
 11 training standards in the UK, so I think all
 12 the courses in the UK are OPITO certified and
 13 that's now a worldwide organization, so
 14 they've got the course being run in countries
 15 around the world. So they're looking at
 16 introducing exits and they've put out
 17 proposals and there's been concerns raised by
 18 the offshore industry in some of the medical
 19 departments about whether any health
 20 implications relating to, would there be
 21 additional stress caused by adding this extra
 22 layer into the helicopter underwater escape
 23 training. And I should have said one of the
 24 first jobs I did when I went to RGIT was look
 25 at levels of stress in trainees undergoing the

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1 emergency response training and so that was
 2 one reason why I was asked to basically relook
 3 at that issue and comment back as to whether
 4 there were any health implications in terms of
 5 them adding that into the training.
 6 ROIL, Q.C.:
 7 Q. Now if I was to ask you or tell you that that
 8 personal protective equipment, I and perhaps
 9 some in the room would include that to include
 10 the helicopter evacuation suit and perhaps the
 11 life jacket, if it's a separate and the EBS,
 12 the breathing system -
 13 DR. COLESHAW:
 14 A. That's right.
 15 ROIL, Q.C.:
 16 Q. And the light and the locator beacon, those
 17 kind of things, is that the kind of equipment
 18 that you are familiar with?
 19 DR. COLESHAW:
 20 A. Yes, anything that's particularly worn all the
 21 time, there's a little bit of separation
 22 between what is defined as personal protective
 23 equipment and lifesaving equipment, so life
 24 jackets and suits could also be described as
 25 lifesaving equipment, but so too could the

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1 life jacket you have under the seat on an
 2 aircraft would be lifesaving equipment, it's
 3 not personal protective equipment because it's
 4 not worn all the time, so it's nuances of the
 5 definition.
 6 ROIL, Q.C.:
 7 Q. So what would human factors then be in the
 8 context of that kind of discipline or that
 9 kind of study?
 10 DR. COLESHAW:
 11 A. In particular how people perform in certain
 12 situations, survival in cold water is a
 13 particular special interest of mine, so that
 14 comes within human factors and it also ties in
 15 with the work of the personal protective
 16 equipment, some of the ergonomic assessments,
 17 so that is how does the equipment work when
 18 you actually put that together with human
 19 performance, so you put together human
 20 performance and the equipment that they're
 21 using and how do those two interact and that
 22 would be an ergonomic assessment and that all
 23 comes within human factors.
 24 ROIL, Q.C.:
 25 Q. Okay, so ensuring that the equipment is

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1 designed or applied in a way so that the human
 2 being can use it with some degree of
 3 integrity.
 4 DR. COLESHAW:
 5 A. That it's easy to use, that it's intuitive and
 6 the equipment is fit for purpose, that it's
 7 doing the job that it's supposed to do.
 8 ROIL, Q.C.:
 9 Q. Now if I go to you publication list which is
 10 extensive, I see that you have written over
 11 the years about things like escape from
 12 capsized helicopters, immersion suit and life
 13 jacket developments, HUET, a training device,
 14 HUET simulator exit study, implementation and
 15 use of the EBS, the breathing system in the
 16 UK, helicopter ditching research and so on. I
 17 take you you spend a fair amount of time
 18 writing.
 19 DR. COLESHAW:
 20 A. Quite a bit of time.
 21 ROIL, Q.C.:
 22 Q. Both by yourself and with others.
 23 DR. COLESHAW:
 24 A. Recently a lot by myself, in the past, in
 25 bigger teams.

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1 ROIL, Q.C.:
 2 Q. Is there a relatively small world of people
 3 that are engaged in this kind of study that
 4 you are involved in?
 5 DR. COLESHAW:
 6 A. I would say very much so, yes, it's a
 7 specialist area.
 8 ROIL, Q.C.:
 9 Q. So it's ten or twenty people, not fifty or a
 10 hundred.
 11 DR. COLESHAW:
 12 A. No.
 13 ROIL, Q.C.:
 14 Q. And the subject of your Ph.D was causes,
 15 consequences and prevention of hypothermia in
 16 water.
 17 DR. COLESHAW:
 18 A. Uh-hm.
 19 ROIL, Q.C.:
 20 Q. A subject very dear to the heart of most
 21 Newfoundlanders.
 22 DR. COLESHAW:
 23 A. I would qualify that that it was looking at
 24 certain aspects, it wasn't looking at the
 25 whole remit of underwater survival, absent

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1 particular periods -
 2 ROIL, Q.C.:
 3 Q. Okay, with those comments and with recognizing
 4 that individuals have the opportunity to look
 5 at Dr. Coleshaw's curriculum vitae, I would
 6 stop at this point and see whether anybody
 7 else has any questions, after which I would
 8 ask for her designation as a person to give
 9 opinion evidence.
 10 COMMISSIONER:
 11 Q. Yes, thank you. Has anybody any questions for
 12 Dr. Coleshaw on her areas of expertise? No, I
 13 think not, so I do declare that Dr. Coleshaw
 14 can be an expert in her field.
 15 ROIL, Q.C.:
 16 Q. Either that or the entire North Sea is wrong.
 17 Thank you, Dr. Coleshaw. I just simply ask
 18 you to identify Exhibit 213 is the 47 page
 19 report that we asked you to do for us.
 20 DR. COLESHAW:
 21 A. Right.
 22 ROIL, Q.C.:
 23 Q. And then Exhibit 214, this is the synopsis of
 24 that report that you were going to use to lead
 25 us through the description -

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1 DR. COLESHAW:
 2 A. Yes.
 3 ROIL, Q.C.:
 4 Q. Perhaps then if we could take you to the
 5 report itself--sorry, to the presentation
 6 itself, be precise in your words, John. I
 7 take it that you were given four issues for
 8 consideration, where did they come from?
 9 Where did you get the instruction?
 10 DR. COLESHAW:
 11 A. They were supplied by Commissioner Wells.
 12 There were a list of many issues and having
 13 had discussion with Commissioner Wells, it's
 14 very apparent there was sort of four areas
 15 where I had some sort of specialist interest
 16 and these are the four areas that were
 17 identified.
 18 ROIL, Q.C.:
 19 Q. So you saw our general issues for
 20 consideration?
 21 DR. COLESHAW:
 22 A. That's right, yeah.
 23 ROIL, Q.C.:
 24 Q. Okay, and I think just for the guidance of
 25 those in the room and others, your item No. 1

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1 is actually item No. 13 on our list.
 2 DR. COLESHAW:
 3 A. Right.
 4 ROIL, Q.C.:
 5 Q. Your item No. 2 is our item No. 2. Your item
 6 No. 3 is our 12 and your item No. 4 is our No.
 7 15. And so these are the issues, I take it,
 8 that you did some research for us and prepared
 9 the report. Could you tell us a little bit
 10 about how you prepared the report, was there
 11 research that needed to be done at that point
 12 in time or was it relying on the body of
 13 experience and exposure that you already had
 14 in terms of doing the report for us.
 15 DR. COLESHAW:
 16 A. The latter of those two, so this was very much
 17 a case of looking at the questions to be posed
 18 and discussing those issues.
 19 ROIL, Q.C.:
 20 Q. These were issues that you were familiar with
 21 already?
 22 DR. COLESHAW:
 23 A. Yes.
 24 ROIL, Q.C.:
 25 Q. Okay, issue No. 1 is worded a little longer

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1 but essentially you captured it on slide No. 3
 2 as being personal protective equipment needed
 3 by helicopter passengers and pilots.
 4 DR. COLESHAW:
 5 A. That's part of the first issue.
 6 ROIL, Q.C.:
 7 Q. Right.
 8 DR. COLESHAW:
 9 A. I should say that my issues, one to four, are
 10 all labelled at the top left-hand corner of
 11 the presentation.
 12 ROIL, Q.C.:
 13 Q. Yes, so on page 3 we see that we're dealing
 14 with issue No. 1, if we go further and we get
 15 into issue No. 2, it will pop up there. Good,
 16 that's very helpful, thank you. Okay, what is
 17 it you want to tell us about personal
 18 protective equipment that is needed by both
 19 passengers and pilots who travel offshore in
 20 Newfoundland, first of all what familiarity
 21 did you have with the Newfoundland offshore?
 22 DR. COLESHAW:
 23 A. Not extensive before the accident last year,
 24 though I had been across to Halifax in 2006
 25 when CAPP held a workshop on emergency

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1 breathing systems, so I had some contact at
 2 that time with members of the industry from
 3 this area, but that was specifically talking
 4 about emergency breathing systems. There had
 5 been a previous slight link up with Peter Noel
 6 from your petroleum board, again to do with
 7 emergency breathing systems from ten years
 8 back.
 9 ROIL, Q.C.:
 10 Q. But what did you note about the environment in
 11 terms of our water and that sort of thing?
 12 DR. COLESHAW:
 13 A. Well in terms of that, you're obviously a very
 14 cold water environment, colder water
 15 temperatures than are experienced in the North
 16 Sea where our minimum temperatures are
 17 probably only down to a six, seven degree
 18 centigrade, yours are working in a colder
 19 environment, in terms of times of flights, UK
 20 anything up to two hours plus of flights, so
 21 probably comparative to some extent in certain
 22 areas, but I think yeah, particularly in terms
 23 of equipment there are differences in
 24 equipment used because of that colder water
 25 temperature.

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1 ROIL, Q.C.:
 2 Q. Okay, you, I take it, understand the nature of
 3 the equipment that's in the North Sea and the
 4 differences between one jurisdiction and the
 5 other up there.
 6 DR. COLESHAW:
 7 A. Right.
 8 ROIL, Q.C.:
 9 Q. And there are some differences.
 10 DR. COLESHAW:
 11 A. There are some differences, yeah.
 12 ROIL, Q.C.:
 13 Q. Okay, well perhaps we can talk about your
 14 general principles and then we'll get into
 15 specific questions as we develop along.
 16 DR. COLESHAW:
 17 A. Okay. On this first slide really all we're
 18 just trying to do is just summarize--asked the
 19 question what I felt was the protective
 20 equipment required and just look at it from
 21 working through the scenario if a helicopter
 22 had water impact, so initially on actual water
 23 impact the first thing we would be looking at
 24 is protection from cold shock and I think many
 25 people in the room already know that cold

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1 shock is this reflex response. On entering
 2 cold water, you tend to take a very big deep
 3 breath and then have several minutes when it's
 4 very difficult to control one's ventilation,
 5 but also if you weren't protected, you'd have
 6 a very strong reflex if you entered water at
 7 naught two degrees centigrade, so the first
 8 thing is providing an immersion suit that will
 9 give you protection from that initial cold
 10 shock. That becomes much more critical if you
 11 then look at the possibility of capsize and
 12 submersion because the biggest problem with
 13 cold shock is that it makes it very difficult
 14 to breath hold and if your head is under the
 15 water, so the average breath hold time in cold
 16 water is thought to be somewhere in the region
 17 of 20 seconds, in some individuals it could be
 18 as little as 10 seconds, so that's a very
 19 short time period in which you can actually
 20 hold your breath and there has been general
 21 recognition that the time needed to escape
 22 from a helicopter is significantly longer than
 23 that, so this is where there's been a growing
 24 recognition of the importance of providing
 25 equipment, in this case, emergency breathing

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1 systems, such as EBS, and to provide
 2 protection from drowning in the event that an
 3 individual has to make an underwater escape
 4 from the helicopter. And on escaping from a
 5 helicopter, there is still quite a high risk
 6 of drowning, particularly in big seas,
 7 breaking waves, there's a severe risk of
 8 drowning, great danger of water being taken
 9 into the respiratory system, so buoyancy
 10 becomes very important to support the head
 11 above the water surface and to provide
 12 protection from breaking waves, tied in with
 13 that is the use of spray hoods and that might
 14 be either on a life jacket or in case of your
 15 suits, it's actually on the suit itself, but
 16 again to stop water washing over the face and
 17 risking drowning.
 18 The next obvious one is protection from
 19 hypothermia, you come back to the immersion
 20 suit here and during this phase, the immersion
 21 suit is protecting you against both short term
 22 and long term effects of cold. So right from
 23 five minutes into a cold water immersion, you
 24 start to lose manual dexterity, gradually the
 25 muscles of the limbs will cool and that could

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1 cause problems with people's ability to swim
 2 and maintain their position and then ties in
 3 with having buoyancy to support you if you
 4 find that you can't swim any longer and then
 5 ultimately protection from hypothermia and
 6 that's something that's going to develop over
 7 a period of hours, rather than minutes and so
 8 that's moving down the timeline in terms of
 9 the emergency situation.

10 ROIL, Q.C.:

11 Q. So the suit really has three functions, I
 12 gather from your evidence, one is to protect
 13 you from the cold shock initially upon
 14 immersion -

15 DR. COLESHAW:

16 A. Yes.

17 ROIL, Q.C.:

18 Q. Then to give you buoyancy once you get out.

19 DR. COLESHAW:

20 A. Certainly in terms of, yeah, your suits in
 21 particular are quite buoyant suits, so yes,
 22 they've got a role for buoyancy there.

23 ROIL, Q.C.:

24 Q. And then ultimately protection for the longer
 25 term until you get saved, in terms of -

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1 DR. COLESHAW:

2 A. So thereafter it's protection from cooling of
 3 the body.

4 ROIL, Q.C.:

5 Q. Right. Let's just chat a little bit about our
 6 suit, because I understand that you have seen
 7 and you're familiar with our suit and that you
 8 have seen and are familiar with the suits in
 9 the North Sea.

10 DR. COLESHAW:

11 A. Uh-hm.

12 ROIL, Q.C.:

13 Q. What are the physical similarities and
 14 differences between, let's say Canada--never
 15 mind Canada, Newfoundland and Labrador and the
 16 English side of the North Sea, and then
 17 Newfoundland and Labrador and the Norwegian
 18 side of the North Sea?

19 MS. COLESHAW:

20 A. In terms of Newfoundland and the UK, North
 21 Sea, probably the biggest difference is in the
 22 amount of insulation provided in the suit. So
 23 your suit has a higher level of insulation.

24 ROIL, Q.C.:

25 Q. Yes.

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1 MS. COLESHAW:

2 A. And that is reflecting this colder water
 3 temperatures in your field of operation.

4 ROIL, Q.C.:

5 Q. Right.

6 MS. COLESHAW:

7 A. That then has implications and one of my later
 8 slides will look at some of those implications
 9 because of the fact that the needs of
 10 providing insulation, then we're talking about
 11 air trapped in the thermal lining of the suit,
 12 in the clothing that you wear underneath the
 13 suit and that trapped air has a negative
 14 consequence in that it makes you much more
 15 buoyant, which in terms of getting out of the
 16 helicopter is a negative. It's a positive
 17 once you've got out and on the water surface,
 18 because there naturally, it does help and this
 19 buoyancy problem to protect you from drowning
 20 but -

21 ROIL, Q.C.:

22 Q. So air trapped in the suit is a negative when
 23 you're in the helicopter?

24 MS. COLESHAW:

25 A. Yeah.

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1 ROIL, Q.C.:

2 Q. But it becomes a positive once you get to the
 3 surface?

4 MS. COLESHAW:

5 A. Yeah.

6 ROIL, Q.C.:

7 Q. Because the air provides some insulation?

8 MS. COLESHAW:

9 A. Yeah. Yes, and basically when we talk about
 10 insulation, a lot of it comes down to air
 11 being a very good insulator. So wool is a
 12 good insulator because it traps air. Neoprene
 13 has bubbles of air within its fabric, so at
 14 the end of the day, air is the big insulator.

15 ROIL, Q.C.:

16 Q. Okay. So in the North Sea then, sorry, in the
 17 British side of the North Sea, how does the
 18 thermal capacity -- you say it's just a liner.
 19 Where does the thermal protection come from?

20 MS. COLESHAW:

21 A. In the early days in the North Sea, we just
 22 had a coverall type of immersion suit which
 23 relied on covering your body surface with
 24 seals and keeping you dry and the actual
 25 insulative value of that suit was dependent on

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1 the clothing worn under the suit. It became
 2 apparent that was perhaps not providing
 3 sufficient insulation in the event of a
 4 helicopter ditching, and we then did then
 5 start -- our manufacturers added thermal
 6 liners that would be worn underneath the suit
 7 to control the level of insulation because one
 8 of the biggest problems of relying on what
 9 people wear under the suit is you don't have -
 10 - or it's difficult to have any control over
 11 what is worn. So by adding a liner, that
 12 ensured a certain level of insulation. So we
 13 came a bit closer to the Canadian suit and at
 14 that time, I think probably the biggest
 15 difference now is that the lining garments
 16 tend to be slightly shorter sleeved and again,
 17 the legs only come down to about the knee
 18 level. They don't cover the lower leg. So it
 19 doesn't give quite as much insulation, but the
 20 positive from our point of view is that -- and
 21 it also means they're not quite as buoyant
 22 when you're doing the helicopter underwater
 23 escape.
 24 ROIL, Q.C.:
 25 Q. Okay. Now on the Norwegian side, I take it

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1 that their suit is rather more like ours than
 2 like yours? Is that correct?
 3 MS. COLESHAW:
 4 A. Very much more like yours, yes.
 5 ROIL, Q.C.:
 6 Q. And what are the similarities or differences?
 7 Is there anything substantial? The UK suit, I
 8 gather, seals at the neck?
 9 MS. COLESHAW:
 10 A. Yes. Again, that's something that's changed.
 11 20 years ago, we had suits that zipped either
 12 up under the chin or to the side of the face,
 13 and there was a helicopter accident near the
 14 Cormorant Alpha platform in 1992 where there
 15 were only six out of 16, I think it was, on
 16 board that survived the incident and there
 17 were cases where the suits hadn't been
 18 properly zipped up and when the emergency
 19 happened at least one of the non-survivors was
 20 found with a significant amount of water in
 21 the suit and it became apparent, having
 22 interviewed others, that quite a few, even if
 23 they were done up, they weren't done up
 24 properly and quite a few of the survivors had
 25 water in their suits. So at that time, we

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1 switched over to a design of suit where
 2 there's a neck seal and a zip across the front
 3 of the suit that's to be zipped down. That's
 4 done up before the start of flight and then
 5 our lifejacket, which you wear as a separate
 6 item, is then donned on top of the helicopter
 7 suit.
 8 ROIL, Q.C.:
 9 Q. Okay. Now the Norwegian suit is more like the
 10 Newfoundland suit in that it zips up to the
 11 face?
 12 MS. COLESHAW:
 13 A. It zips up to the face, that's right.
 14 ROIL, Q.C.:
 15 Q. So I take it that there's no unanimity in the
 16 North Sea world as to what the best suit is or
 17 are the British entitled to claim the best
 18 suit?
 19 MS. COLESHAW:
 20 A. I think we've come from a different starting
 21 point because we don't have quite such cold
 22 water temperatures. We're able to pull back a
 23 little bit on the amount of insulation
 24 provided and part of the reasoning of that,
 25 and not providing yet more insulation to give

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1 them better protection in the cold water, one
 2 of the issues there is the problem of thermal
 3 comfort and thermal stress in a helicopter
 4 cabin and there are particular problems,
 5 spring, April-May time, when the sea
 6 temperatures are still at their coldest, but
 7 we start getting quite warm weather, so air
 8 temperatures are increasing, you could get
 9 some very hot days. Those times there's a
 10 tendency that people will wear less clothing
 11 under the suit and also higher cabin
 12 temperatures, and then it's balancing. We're
 13 now in a regime where you got a sealed suit,
 14 warm sealed, that while I think the
 15 individuals have to accept a certain amount of
 16 discomfort because the equip is provided to
 17 give them protection in the event of cold
 18 water immersion, but there's a level above
 19 which you don't want to push people. We do
 20 have days when there are people complaining
 21 that they're sweating and are wet when they
 22 get to the platform because they're hot. Now
 23 if you apply that across to the suits used in
 24 Norway and Canada, you got the higher
 25 insulation and I think you wear your suits

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1 unzipped except for the period coming up to
 2 landing, and that's partly to relieve this
 3 thermal stress problem in the helicopter
 4 cabin.
 5 ROIL, Q.C.:
 6 Q. And does the Norwegian side of the North Sea,
 7 do they get into colder waters and go farther
 8 north than the British side?
 9 MS. COLESHAW:
 10 A. Yes.
 11 ROIL, Q.C.:
 12 Q. Okay. So if we were looking for a factual
 13 comparator, Norway factually looks more like
 14 us in terms of the environment than the UK?
 15 MS. COLESHAW:
 16 A. I would say so, yes.
 17 ROIL, Q.C.:
 18 Q. Okay. That little aside with those suits was
 19 not really part of your presentation, but I
 20 think it's important to understand.
 21 MS. COLESHAW:
 22 A. Covered off at least one of the slides in
 23 doing that.
 24 ROIL, Q.C.:
 25 Q. That's right. Okay. Now you can -- I can

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1 take you back then to your slide three or
 2 four, as you choose, to go forward.
 3 MS. COLESHAW:
 4 A. I think the only thing we didn't mention on
 5 slide three was just the last item, equipment,
 6 which I'm not going to talk very much about,
 7 but the location, being aided by personal
 8 locator beacons, PLBs, but I'll come back to
 9 that in a minute.
 10 So I think slide four probably covers
 11 most of these issues in that discussion. So
 12 the first one was being cold shock and
 13 protection for that being provided by the fact
 14 that the suit covers the majority of the body
 15 surface and obviously the one area that isn't
 16 completely covered is the face, the head if
 17 you haven't got your hood on. We've covered
 18 the issue of insulation being provided by
 19 trapped air. We've talked about the conflict
 20 with buoyancy making escape more difficult.
 21 ROIL, Q.C.:
 22 Q. Yeah, I think the trapped air is perhaps -- it
 23 may not be news to us, but I think we have not
 24 looked at trapped air as being a factor to
 25 provide protection.

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1 MS. COLESHAW:
 2 A. Right.
 3 ROIL, Q.C.:
 4 Q. We're thinking more in terms of the
 5 manufacture of the suit, the fact it keeps the
 6 water out, the fact that there's a foamy
 7 substance there that that's providing, but in
 8 fact, air in itself is an additional factor
 9 that provides insulation.
 10 MS. COLESHAW:
 11 A. Yeah, yeah. There are going to be gaps
 12 between the layers. I mean there's enough
 13 talk about wearing layered clothing to provide
 14 better insulation, so it's just another
 15 example of that, that you've got layered and
 16 insulation under the suit in terms of
 17 clothing, a gap between the clothing and the
 18 suit and then the actual insulation of the
 19 lining of the suit itself.
 20 ROIL, Q.C.:
 21 Q. And the conflict caused by the trapped air
 22 creating buoyancy versus the trapped air that
 23 you want is a conflict that we can't resolve
 24 easily?
 25 MS. COLESHAW:

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1 A. Not easily. I mean, there may be changes in
 2 the future and then I think that then ties
 3 into the next point on my slide, which is
 4 looking at the fit of the suit, and again,
 5 that was an issue that the Commissioner was
 6 particularly interested in because if you have
 7 a loose fitting suit, then again there's going
 8 to be a lot more air in the suit as it's worn
 9 normally than a very close fitting suit, and
 10 that's possibly another slight difference
 11 between the suits used here and Norway and the
 12 suits used in the UK where the UK suits tend
 13 to be slightly closer fitting. That partly
 14 depends on the number of sizes offered. So if
 15 you're offering four or five sizes, there's
 16 going to be a difference between a
 17 manufacturer that offers 15 or 20 sizes. So
 18 when you go along to the heliport and look for
 19 the appropriate size suit, if that's based
 20 primarily on height, you're a very tall
 21 person, but slim, you may end up with a large
 22 or an extra large suit because of your height,
 23 but the build is not particularly appropriate
 24 for your body build, and that is again a sort
 25 of situation where you could get a lot of

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1 trapped air and therefore problems with the
 2 buoyancy during the helicopter underwater
 3 escape.
 4 ROIL, Q.C.:
 5 Q. It appeared to us in the evidence that we took
 6 in in the earlier phase, that the whole issue
 7 of fit was not one that anybody focused on
 8 very heavily until very close to the end of
 9 this piece. Has the issue of fit been a big
 10 issue in terms of the research that you've
 11 done? Has there been a focus on the fact that
 12 fit is important or is that something that
 13 everybody has only discovered relatively
 14 recently?
 15 MS. COLESHAW:
 16 A. I think there was awareness of the problem in
 17 terms of buoyancy and the fit. I suppose in
 18 the UK, we tend to have more suit sizes
 19 available, so it's possibly less of an issue,
 20 but certainly manufacturers in the design of
 21 the suits do try and provide means of
 22 preventing that trapped air from being a
 23 problem and so there are certain helicopter
 24 suits that have got elasticated legs, so it's
 25 another difference with UK suits that they

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1 have socks, rather than the boots that are
 2 present on the Canadian suits.
 3 ROIL, Q.C.:
 4 Q. Okay. So I was going to lead you to two
 5 things certainly, which was boots and gloves.
 6 So you've seen the Canadian suit with the
 7 rather large green boot at the bottom. Is
 8 that similar to what's affixed in the UK?
 9 MS. COLESHAW:
 10 A. In the UK, it's more like a sock on the bottom
 11 of the suit, rather than a boot.
 12 ROIL, Q.C.:
 13 Q. And do you -
 14 MS. COLESHAW:
 15 A. So the user will wear a shoe underneath.
 16 ROIL, Q.C.:
 17 Q. - and what do you wear underneath then when
 18 you're putting on the UK suit? Do you wear
 19 your own footwear afterwards or do you wear -
 20 MS. COLESHAW:
 21 A. You take your footwear off and that will be
 22 put on on top of the sock of the suit.
 23 ROIL, Q.C.:
 24 Q. Okay, and what about in the Norwegian suit?
 25 MS. COLESHAW:

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1 A. Norwegian suit is similar to the Canadian one.
 2 I think the boots are slightly smaller in
 3 size.
 4 ROIL, Q.C.:
 5 Q. And what about the situation with gloves? We
 6 haven't mentioned gloves.
 7 MS. COLESHAW:
 8 A. Gloves, again, I think on all the suits are
 9 primarily separate so they're donned later.
 10 They're not worn all the time.
 11 ROIL, Q.C.:
 12 Q. Right.
 13 MS. COLESHAW:
 14 A. There is an issue in terms of are they easy to
 15 don when somebody is in cold water. Talked
 16 about manual dexterity being lost very
 17 quickly, so there are potentially differences
 18 in terms of the type of glove provided, as to
 19 how easy it is to get on if your hands are
 20 cold.
 21 ROIL, Q.C.:
 22 Q. Have you been able to view and listen to
 23 Robert Decker's testimony here and the
 24 evidence he gave about the day in question and
 25 his difficulty with his hands?

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1 MS. COLESHAW:
 2 A. Yes, I did.
 3 ROIL, Q.C.:
 4 Q. Okay. Is that something that was new to the
 5 world or was that the -- the loss of
 6 dexterity, was that a known concern?
 7 MS. COLESHAW:
 8 A. That is a known -- the old UK CAA Spec 19
 9 standard for immersion suits did actually have
 10 a test where the test subjects were required
 11 to be immersed in cold water for, I can't
 12 remember, something like ten minutes and then
 13 have to don the gloves of the suit and they
 14 had to be able to do that with cold hands, and
 15 so that is a problem that there has been some
 16 awareness of.
 17 ROIL, Q.C.:
 18 Q. Okay. Part of the question that was put to
 19 you is what equipment and clothing is
 20 necessary. We've addressed passengers. We
 21 haven't -- or we've talked around passengers.
 22 We haven't really addressed pilots. Are there
 23 different concerns for pilots?
 24 MS. COLESHAW:
 25 A. I think in terms of, yeah, the risks are

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1 exactly the same, so you'd hope that the
 2 equipment that they used would have exactly
 3 the same performance, and that's not
 4 necessarily the case. I think quite often
 5 their suits are different to the passenger
 6 suits. Certainly in the UK, they wear a
 7 slightly different style of lifejacket and
 8 emergency breathing systems, not all of our
 9 pilots are currently flying with or only a few
 10 are flying with any emergency breathing
 11 system, and so there are differences. The
 12 colour of the suits, and that was an issue
 13 that was brought up in an accident in the UK a
 14 couple of years ago where the passenger suits
 15 are yellow, can be quite easily picked up by
 16 the search and rescue, and the pilots were
 17 wearing navy immersion suits and I don't think
 18 that issue has been addressed yet, in terms of
 19 should that be changed.
 20 ROIL, Q.C.:
 21 Q. Now we also asked you to speak something about
 22 what standards are available. What standards
 23 are you aware of? Is there a world universal
 24 standard or are standards different all over
 25 the place?

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1 MS. COLESHAW:
 2 A. There are quite a few different standards and
 3 attempts to harmonize it, it would be useful
 4 to move on to my slide that has some of the
 5 standards listed.
 6 ROIL, Q.C.:
 7 Q. Yes, exactly, perhaps we'll move to number
 8 five.
 9 MS. COLESHAW:
 10 A. Which is the next slide, so to the left of
 11 this slide, I say there are many different
 12 standards. These are three that are possibly
 13 most appropriate, so the top one is the
 14 Canadian. I certainly don't have to remind
 15 you about the CGSB.
 16 ROIL, Q.C.:
 17 Q. Canadian General Standards Board.
 18 MS. COLESHAW:
 19 A. General Standards Board, thank you.
 20 ROIL, Q.C.:
 21 Q. Yes.
 22 MS. COLESHAW:
 23 A. So that's their 1999 standard. One I don't
 24 have here is the UK Civil Aviation Authority
 25 Spec 19, which has been superseded by the two

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1 European standards as I list on this slide.
 2 EASA is the European Aviation Safety Agency
 3 and they've recently taken over responsibility
 4 for airworthiness in Europe. So they have two
 5 standards, one for an integrated helicopter
 6 crew and passenger immersion suit. So that is
 7 quite similar to the Canadian suit whereby you
 8 have an immersion suit with additional
 9 buoyancy that is an integral part of the
 10 immersion suit. In the UK, we have a separate
 11 helicopter immersion suit and lifejacket and
 12 so the second of these two European standards,
 13 the ETSO-2C503 is the one that the UK
 14 helicopter suits, I think in the future, will
 15 be approved to. So that's got the closest
 16 similarity with the old spec 19.
 17 ROIL, Q.C.:
 18 Q. So I take it that even though there are two
 19 very different looking suits on either side of
 20 the North Sea, both of them are built to a
 21 standard that is more or less the same
 22 definition?
 23 MS. COLESHAW:
 24 A. Yes. I mean, certainly in the -- most of the
 25 passenger suits, and probably pilot suits,

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1 being used in the UK at the present time are
 2 still suits that have been approved to the old
 3 spec 19. There is now one UK manufactured
 4 helicopter suit to this new ETSO standard and
 5 I think there is one suit in Norway, a Helly
 6 Hansen suit, that is manufactured to the ETSO-
 7 2C502 standard. So there are now two ETSO
 8 approved suits. The Norwegian one, I think,
 9 is already in use. The UK manufactured
 10 European approved suit is currently subject to
 11 trials, so that's not widely used as yet.
 12 It's just in its early implementation phase.
 13 ROIL, Q.C.:
 14 Q. So if an existing suit is in use, then it can
 15 continue in use even though a new standard
 16 comes in?
 17 MS. COLESHAW:
 18 A. That's right. There are what's called
 19 grandfathering rights and I think the
 20 manufacturers have a duty of care to compare
 21 what differences there are between the
 22 standard to which their existing suit has been
 23 approved and the new standard and obviously
 24 look at if there is any big difference. There
 25 aren't huge differences. Probably one of the

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1 biggest difference for the UK sector is the
 2 thermal requirement is actually increased and
 3 they're now required to provide protection for
 4 four hours in water naught two degrees
 5 centigrade for the European approved suits.
 6 Now we've not previously -- when I say we, the
 7 UK manufacturers have not designed suits for
 8 that cold of water temperature. So they're
 9 having to now look at possibly upping the
 10 insulation slightly to make sure that they
 11 meet this slightly higher standard for
 12 insulation.
 13 ROIL, Q.C.:
 14 Q. So the standards, I take it, define
 15 performance requirements and you heard all of
 16 the evidence earlier about performance. They
 17 are more set to design or to dictate
 18 performance standards rather than what the
 19 suit looks like, in terms of physical
 20 characteristics?
 21 MS. COLESHAW:
 22 A. Most of it. Part of the standards relate to
 23 design, but the majority is focused on
 24 performance and levels of protection offered.
 25 ROIL, Q.C.:

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1 Q. Okay. So you've indicated here the current
 2 performance requirements, levels of thermal
 3 protection and then it's expressed in terms of
 4 Clo or something called Clo. That's not a
 5 term that we've heard before, so you might
 6 want to tell us what sort of -- using more
 7 common understanding, what sort of definition
 8 that is giving to us.
 9 MS. COLESHAW:
 10 A. Right. Clo is a unit of insulation. It's not
 11 a standard international unit, as might be
 12 preferred by the scientific community, but
 13 it's one that's a little bit more easy to
 14 understand than the international unit. One
 15 Clo is equivalent to naught .155 degrees
 16 Centigrade meters squared per watt, which you
 17 can imagine is a very difficult unit to -
 18 ROIL, Q.C.:
 19 Q. That's fairly simple to understand, I'm sure,
 20 but it's way over my head.
 21 MS. COLESHAW:
 22 A. So one Clo is -- and you can see there, I put
 23 two values. The .75 Clo is the amount of
 24 insulation required by the Canadian standard.
 25 .5 is the equivalent amount of insulation

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1 required in the European standards.
 2 ROIL, Q.C.:
 3 Q. Okay, and .75 is a higher amount of -
 4 MS. COLESHAW:
 5 A. Higher amount of insulation, yes. One clo was
 6 originally defined as the amount of insulation
 7 required to keep an individual, sitting in a
 8 room at basically a normal room temperature
 9 standard humidity, low air flow, to keep that
 10 person in comfort, and that was the original
 11 definition of a -
 12 ROIL, Q.C.:
 13 Q. So it does come out of a simple to understand
 14 definition?
 15 MS. COLESHAW:
 16 A. Very much so, and there is now a conversion to
 17 the correct units, but I think a Clo, a Clo
 18 value is slightly easy to understand, yeah.
 19 There's another slight difference in that when
 20 we're talking about immersion suits, we're
 21 also talking about insulation measured in
 22 water, so you'll sometimes see it referred to
 23 as a immersed Clo.
 24 ROIL, Q.C.:
 25 Q. So we've heard Canadian workers say that

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1 they'd rather wear a UK suit or they'd rather
 2 wear a Norwegian suit and I take it that what
 3 this is telling us is that there is more
 4 thermal protection in the Canadian suit?
 5 MS. COLESHAW:
 6 A. In the Canadian, yes, that's correct.
 7 ROIL, Q.C.:
 8 Q. Yes.
 9 MS. COLESHAW:
 10 A. And the Norwegian suit is much closer to that
 11 figure, so they exceed the thermal protection
 12 required in the European standard. So I think
 13 the Norwegian suit would be much closer to the
 14 .75 Clo level of insulation.
 15 ROIL, Q.C.:
 16 Q. Leakage, we heard a lot about water getting
 17 into suits. What can you tell us about your
 18 understanding of the ability and the
 19 desirability of -- the ability of water to get
 20 in and the desirability to keep water out?
 21 MS. COLESHAW:
 22 A. As I say, that is number one is you want
 23 performance requirement would be to try and
 24 keep the individual dry. As soon as you
 25 introduce water into the suit, you're starting

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1 to destroy the insulation offered and this is
 2 because of this fact that insulation is
 3 provided by air. Water displaces the air and
 4 water is a much greater -- has much greater
 5 conductivity than air, and so you're going to
 6 cool much more quickly if water is introduced
 7 into the suit.
 8 ROIL, Q.C.:
 9 Q. But is it acknowledged that a suit can be made
 10 completely watertight or is it acknowledged
 11 that there will always be a certain amount of
 12 water that will get into a suit that is fit to
 13 a human body?
 14 MS. COLESHAW:
 15 A. Not always, but it's very difficult to get a
 16 suit that will fit everybody and seal
 17 correctly on everybody to remain absolutely
 18 watertight. Hence there is a certain amount
 19 of allowable leakage in most of the immersion
 20 suit standards. The 200 gram figure I've put
 21 here with a question mark is the figure that's
 22 allowable in the European standard, and this
 23 level of leakage is thought to not have a
 24 significant effect on body cooling.
 25 ROIL, Q.C.:

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1 Q. How much is 200 grams to those of us that work
 2 in cups and those kinds of things?
 3 MS. COLESHAW:
 4 A. Probably a smallish cup. I was given a small
 5 bottle of water on the plane coming over and
 6 that was 250 mls.
 7 ROIL, Q.C.:
 8 Q. Okay.
 9 MS. COLESHAW:
 10 A. So it's not a huge amount, but that would
 11 create sort of quite a big damp patch if you
 12 introduced 200 mls, dripped it down
 13 somebody's clothing, you'd end up with quite a
 14 big wet patch on their clothing and probably
 15 not running down to the feet and filling up
 16 the boots.
 17 ROIL, Q.C.:
 18 Q. And what then can you tell us about the
 19 buoyancy and again, there's an N here which I
 20 understand to be something called neutons, but
 21 perhaps you can explain to us what are the
 22 concerns with respect to not enough buoyancy
 23 or too much buoyancy?
 24 MS. COLESHAW:
 25 A. Right. Several figures I've included here.

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1 The 156 neutons is the amount of buoyancy or
 2 is a minimum level of buoyancy that's allowed
 3 in the Canadian standard for the additional
 4 buoyancy device that you have that provides
 5 support to the head, so it's equivalent to a
 6 lifejacket. This is the positive buoyancy
 7 that's there to protect you from drowning. So
 8 that figure -- I should say, again, a lot of
 9 aviation, that lifejackets have got
 10 approximately 150 neutons of buoyancy within
 11 them. That compares to the figures I've put
 12 below which are maximum values of buoyancy,
 13 and these are limits set because of concerns
 14 about people being able to actually escape
 15 from the helicopter when underwater. 139 --
 16 sorry, 175 neutons is the amount of buoyancy
 17 allowed in the Canadian standard. You see
 18 that's somewhat higher than the maximum limit
 19 in the European standards and the old spec 19,
 20 which was 150 neutons. There's been quite a
 21 bit of work in this area about where that
 22 level should be. 150 neutons is probably the
 23 preferred maximum figure and I think even work
 24 that's been done in -- a lot of the work has
 25 been done in Canada by Chris Brooks and his

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1 teams. I think a slightly higher figure was
 2 included in the Canadian standard because of
 3 the recognition that if you wanted to get the
 4 level of thermal protection that you needed in
 5 your suits to protect you from water
 6 temperatures as low as zero, it was then very
 7 difficult to balance these two figures of
 8 level of insulation required and the
 9 consequent buoyancy of the suit.
 10 ROIL, Q.C.:
 11 Q. So I take it that the tugging that goes on
 12 between buoyancy and thermal is a very
 13 troubling issue for the industry that you work
 14 with?
 15 MS. COLESHAW:
 16 A. I think it's a very difficult one and it's a
 17 very difficult one for the standards board.
 18 You're having to put priority. Now if you can
 19 get fabrics that provide better insulation
 20 with less air in the suit, you know, better
 21 fit will improve the situation, then there
 22 could be improvements. There isn't an easy
 23 answer. I think the only other thing, I think
 24 it's almost a risk assessment required.
 25 Again, can you look at the level of thermal

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1 protection required? The suits you have are
 2 designed to provide protection for six hours.
 3 Is there any way that you can improve recovery
 4 times that means perhaps you don't have to
 5 provide quite as much insulation? The answer
 6 to that may well be no, but that -- yeah, I
 7 think it's a risk assessment in terms of where
 8 do the priorities lie and therefore where do
 9 we shift the balance between insulation and
 10 buoyancy.
 11 ROIL, Q.C.:
 12 Q. So if we can assure recovery in a faster
 13 period of time, we can bring down the thermal
 14 factor and that will automatically then bring
 15 down the buoyancy problem?
 16 MS. COLESHAW:
 17 A. Possibly.
 18 ROIL, Q.C.:
 19 Q. Possibly.
 20 MS. COLESHAW:
 21 A. Yes.
 22 ROIL, Q.C.:
 23 Q. I understand. Okay, perhaps we'll move on to
 24 Slide #6 where you're talking more
 25 specifically about buoyancy equipment.

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1 MS. COLESHAW:
 2 A. Again this is really just an overview in terms
 3 of answering the question of what equipment is
 4 needed. So in terms of buoyancy, basically
 5 you got two options in the Canadian and
 6 Norwegian suits. It's reliance based on the
 7 buoyancy of the suit itself, and this integral
 8 inflatable buoyancy element, which in this
 9 case is normally orally inflated. In the UK
 10 markets then we tend to have a separate
 11 immersion suit and life jacket. In that case,
 12 the life jacket is - it's an inflatable life
 13 jacket which is manually inflated once the
 14 user has actually escaped from the helicopter.
 15 At the end of the day they're providing the
 16 same performance requirement, which is to
 17 support the head, and also at the bottom we
 18 talk about the spray hood being necessary and
 19 to protect the mouth and nose from wave
 20 slashing and waves actually breaking over the
 21 face of the user. So in terms of protection
 22 from drowning, obviously that's a very
 23 important performance requirement.
 24 The last factor I've got there is in
 25 terms of the turning capability of the user.

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1 There's again a slight difference in terms of
 2 requirements and standards. In the UK, the
 3 life jacket is required to turn with the user
 4 and actively - there is quite a strong
 5 argument been made in other jurisdictions that
 6 is that necessary because if you're able to
 7 escape from the helicopter, you'll be
 8 conscious, and, therefore, able to turn
 9 yourself, and so the Canadian standard and
 10 indeed the Norwegian have less standards that
 11 the new ETSOs just require that the user can
 12 turn themselves onto their back, but that the
 13 buoyancy has to keep the person once they're
 14 on their back in a very stable position. So
 15 that's to ensure that a wave will not flip a
 16 person over, and particularly somebody that's
 17 getting very tired or somebody that has lost
 18 consciousness, that they're not then going to
 19 be turned face down into the water.
 20 ROIL, Q.C.:
 21 Q. Is there any work ongoing that you're aware of
 22 that relates to the orientation of the person
 23 in the water? In other words, is it better to
 24 have your head to the waves or feet to the
 25 waves? Is that something that has been

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1 thought about or talked about, to your
 2 knowledge?
 3 MS. COLESHAW:
 4 A. Certainly Professor Tipton reports on this,
 5 and Frank Golden have talked about this in
 6 their book on sea survival, and it's much
 7 better to be able to face the waves. You can
 8 then see the oncoming water, if it's going to
 9 be a big wave that's about to break over you,
 10 you can take action to prevent that happening.
 11 What tends to happen when people lose
 12 consciousness is that they then turn with
 13 their back to the waves, and then there's a
 14 much higher risk of waves breaking actually
 15 over the face of the individual.
 16 ROIL, Q.C.:
 17 Q. And I gather the spray hood is designed to
 18 stop that from being a problem for the wearer?
 19 MS. COLESHAW:
 20 A. That's right. Modern spray hoods are pretty
 21 effective at doing that. In the past, there
 22 was a lot of resistance to use of spray hoods
 23 because they tended to fall on the face and
 24 steam up. There was a lot of resistance of
 25 people to use them. They've been pushing,

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1 pushing, and pushing over many years to try
 2 and get greater use of spray hoods, and at
 3 least the new designs tend to hold the spray
 4 hood away from the face. So again it's more
 5 comfortable and more user friendly, more fit
 6 for purpose, and for that reason - and
 7 probably less likely to ventilate and have to
 8 have holes, which means there is some
 9 circulation of air underneath the spray hood.
 10 Again that'll tend to stop the steaming up.
 11 ROIL, Q.C.:
 12 Q. Okay, so we've covered the suit and the
 13 buoyancy equipment. What other equipment do
 14 you feel is necessary for an offshore worker
 15 to wear while transiting?
 16 MS. COLESHAW:
 17 A. Well, next on the list is the emergency
 18 breathing system, so EBS, which is something
 19 that's been introduced in terms of the
 20 offshore industry over the last ten to fifteen
 21 years. We touched on this earlier that
 22 there's been a recognition that the time
 23 needed to escape from a helicopter in a real
 24 emergency has been estimated to be somewhere
 25 between 45 and 60 seconds. We've talked about

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1 breath hold times in cold water that may be on
 2 average 20 seconds, and as little as 10
 3 seconds, and so there's obviously a disparity
 4 there that means that under breath hold, many
 5 individuals will actually not have sufficient
 6 time to escape from a helicopter, and so the
 7 EBS is a piece of equipment that hopefully
 8 will allow people sufficient time to escape
 9 from a helicopter. That does require them to
 10 be, I say here, successfully deployed to
 11 actually provide that protection. There's
 12 been a lot of concern that there's an overall
 13 safety benefit, that it does take time to
 14 deploy the EBS, and initially there were a lot
 15 of concerns that people would spend time
 16 deploying the EBS and not getting out quickly,
 17 and there's somebody with EBS sitting in a
 18 seat next to an exit was having problems,
 19 there might be somebody sitting on their
 20 inside who wanted to just get out very quickly
 21 who would be held up by that, and so in
 22 looking at EBS, it's very much again a thing
 23 of balancing the safety benefits against any
 24 potential disadvantages.
 25 If we look at the benefits side, which I

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1 think is what we should do because of this
 2 disparity that we've got at the top of the
 3 slide here, then as long as we have got well
 4 designed EBS that can be very simple and can
 5 be deployed quickly, then it does mean that
 6 you're allowing that individual during this
 7 underwater escape; number one, to overcome
 8 disorientation particularly if you're turned
 9 upside down in a helicopter possibly in the
 10 dark, and people are very confused and the
 11 first few seconds as to which way up they are,
 12 they lose location of their exits if they're
 13 not careful, so this is something that can
 14 again delay escape. The EBS, if they're able
 15 to breathe, they've got a little bit more time
 16 to just orientate themselves again and
 17 relocate their exits. Actions such as
 18 releasing the seat harness, again if people
 19 have problems, they've just got that little
 20 bit of extra time to sort out why it hasn't
 21 released and effect a release of the harness.
 22 The ability to locate and jettison the exit or
 23 window, it may be right next to you, it may be
 24 some distance away, you have got enough time
 25 in the water to actually locate that exit and

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1 be able to operate the mechanism to get out.
 2 We talked about the buoyancy problems
 3 that could be experienced. That's
 4 particularly difficult during the first
 5 probably ten seconds under water because over
 6 that period some of that trapped air will
 7 actually escape from the suit, and if you look
 8 at underwater video of people, you can
 9 actually see water escaping from the suits,
 10 but if somebody releases a harness before that
 11 water is escaped, they could be very buoyant,
 12 and if they are in a buoyant suit, they tend
 13 to with submersion float up towards the
 14 surface and then have to pull themselves down
 15 to the exit. In a capsized, they might be
 16 pushed down into their seat due to the
 17 buoyancy. So again effective use of breathing
 18 systems just gives people perhaps more time to
 19 overcome any problems they have and escape
 20 from the helicopter.
 21 So I think in terms of benefits, there
 22 are some very definite benefits of having this
 23 piece of equipment.
 24 ROIL, Q.C.:
 25 Q. You say that this is a relatively recent

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1 development in terms of your experience in the
 2 North Sea. How long ago did people begin to
 3 use emergency breathing systems and how long
 4 has it taken it to become universal, or is it
 5 even yet universal?
 6 MS. COLESHAW:
 7 A. The differences between military and civilian,
 8 the military have been using them for probably
 9 20 years plus, and tend to use compressed air
 10 systems. In terms of the offshore industry, I
 11 think I'm right in saying that the UK were
 12 probably the first to actually start using an
 13 EBS device, and that was work instigated by
 14 Shell UK who had had several accidents and had
 15 a whole program looking at survival at sea
 16 following a helicopter accident. They
 17 developed a rebreather called the Airpocket.
 18 So that was introduced in the late 90s. That
 19 was then developed further and what is now
 20 being used in the UK sector is what's referred
 21 to as a Hybrid Device. So it's a rebreather
 22 where a person will take a deep breath of air
 23 and basically have a counter lung. So they'll
 24 have a mouthpiece and they'll blow out into
 25 the counter lung. The pure rebreather,

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1 they'll just keep reusing that single breath
 2 of air. So blowing out into the bag, back
 3 into the lungs.
 4 The hybrid has an extra small cylinder of
 5 gas which fires automatically when the unit
 6 goes under water. That's primarily to protect
 7 the individual if they don't have time to take
 8 that single breath of air before their head
 9 goes under water. So it gives -- between
 10 three and three and a half litres of air is
 11 discharged into the counter lung. That's the
 12 device that's now being used in the UK sector.
 13 ROIL, Q.C.:
 14 Q. And is that now universally or widely being
 15 used or is it still limited to certain
 16 companies?
 17 MS. COLESHAW:
 18 A. Certainly in the UK, I think that's used
 19 pretty well across the board now. In the UK,
 20 that everybody got the hybrid and rebreather
 21 device, and there are other companies around
 22 the world that are using that same device.
 23 Norway have a pure rebreather, so they're just
 24 relying on the individual taking a breath of
 25 air and rebreathing it from a counter lung.

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1 ROIL, Q.C.:
 2 Q. And I think you said you're aware that we were
 3 using the - you had some engagement in the
 4 process that brought the compressed air system
 5 to Canada.
 6 MS. COLESHAW:
 7 A. That's right.
 8 ROIL, Q.C.:
 9 Q. Tell us a little bit about that just in terms
 10 of what engagement did you have in that
 11 process?
 12 MS. COLESHAW:
 13 A. That goes back to early 2006. At that time,
 14 CAPP held a workshop and they invited, I
 15 think, three of us from the UK to come over to
 16 Canada and basically talk about the UK
 17 experience in terms of the introduction of EBS
 18 in the UK.
 19 So a lot of what we were presenting was
 20 relating to the rebreather and the hybrid
 21 devices, and then there was a lot of
 22 discussion about the merits of rebreathers
 23 versus compressed air systems.
 24 ROIL, Q.C.:
 25 Q. I think we had direct evidence from CAPP about

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1 the process that they went through over a long
 2 period of years. It's just rather interesting
 3 to note that you were one of the people that
 4 was resourced back then to bring some guidance
 5 or some information from the UK sector.
 6 MS. COLESHAW:
 7 A. That's right, and I later met a group who came
 8 over to the UK 18 months ago, was it, I can't
 9 remember the actual date of that, but I think
 10 it was to the UK and Norway at that time.
 11 ROIL, Q.C.:
 12 Q. Right, but I take it you were not involved in
 13 the decision making as to what to -
 14 MS. COLESHAW:
 15 A. No, not at all.
 16 ROIL, Q.C.:
 17 Q. Okay. Moving to Slide #8, again I think we
 18 can go through this one fairly quickly.
 19 MS. COLESHAW:
 20 A. Yeah, and this is just a listing of what are
 21 considered to be performance criteria that
 22 you'd be looking for in an EBS. So the
 23 obvious one is something that's very simple in
 24 design and this is primarily because you want
 25 something that's very quick to deploy.

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1 There's recognition that EBS is there to
 2 protect from drowning, and if you look at the
 3 different types of helicopter impact, then in
 4 a controlled ditching, then actually there are
 5 very few lives lost, but where lives tend to
 6 be lost most from drowning are flying
 7 incidents and what have been described as
 8 vertical descents with limited control as
 9 opposed to the fly-ins have got the highest
 10 fatality rate, but in both cases the majority
 11 of deaths where cause is known are thought to
 12 be due to drowning, and it's only when you get
 13 to uncontrolled impacts in order to find this
 14 as non-survival crashes where impact injuries
 15 exceed fatalities due to drowning.

16 So you're then looking at situations
 17 where perhaps there's very little time for
 18 people to prepare for the water impact, and
 19 it's, therefore, pretty vital that EBS are
 20 very quick to deploy. I think that's a very
 21 important performance criteria for EBS. The
 22 other items I've got here are easy to use in
 23 realistic conditions. A particular one is
 24 cold water. A lot of the work that's done of
 25 ease of use is done -- so the training course

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1 you've got in the offshore training centre
 2 which is relatively warm water compared to
 3 Canadian sea temperatures, UK sea
 4 temperatures, so it's important that
 5 manufacturers look at performance actually in
 6 cold water and there you're introducing the
 7 effects of cold shock and how it affects
 8 people's breathing from the units.

9 It's important how effective if somebody
 10 is inverted or if they're having to swim face
 11 down during an escape, and there aren't any
 12 snagging hazards when they're actually coming
 13 out through an exit or escape window.

14 The next one I've got there is
 15 compatibility with other equipment and that
 16 would apply both to the immersion suit, and
 17 the EBS might either be an integral part of
 18 that immersion suit or an extra piece of
 19 equipment that's added in. So particularly in
 20 the latter case, you don't want the
 21 performance of the EBS in any way hamper the
 22 performance of the immersion suit. The other
 23 area of particular interest is the seat
 24 harness. There's a lot of potential for four
 25 point harness to be affected by an EBS device,

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1 and they're variously situated on the chest
 2 down at the waist. So you've got to be sure
 3 that the harness can be released and it's not
 4 being trapped by the EBS, and vice versa that
 5 with a harness, you can actually find the EBS.
 6 So those two have got to interact correctly.

7 ROIL, Q.C.:

8 Q. So I take it from all of this evidence that
 9 there is a necessity at some point in time to
 10 make everything fit together to make sure that
 11 the life jacket, if separate, works with the
 12 suit; that the suit works with the EBS, and so
 13 on. Is there anybody that is overall
 14 responsible for that kind of integration, or
 15 do these tends to be disparate pieces that fit
 16 together sometimes and sometimes are a
 17 problem?

18 MS. COLESHAW:

19 A. It depends a bit on how much of the system is
 20 developed by manufacturers, and the problem
 21 comes here if you have a group of
 22 manufacturers that produce immersion suits -
 23 in the UK there would be a separate group that
 24 are producing life jackets. Some do both; a
 25 lot don't. A lot are separate companies.

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1 You've potentially got a different
 2 manufacturer again who produces the emergency
 3 breathing system. So then you can't have -
 4 it's very difficult to have the manufacturer
 5 of the immersion suit responsible for
 6 compatibility with every life jacket and every
 7 emergency breathing system.

8 ROIL, Q.C.:

9 Q. And I take it the seat belt manufacturer would
 10 like be another disparitor.

11 MS. COLESHAW:

12 A. Yeah.

13 ROIL, Q.C.:

14 Q. Separate individual, or separate entity.

15 MS. COLESHAW:

16 A. The process is simpler if you have a
 17 manufacturer who produces an integrated
 18 system. Helly Hansen is probably one of the
 19 few that have got a suit with integral
 20 buoyancy and they also make a breathing
 21 system, in which case they're responsible for
 22 looking at compatibility. Otherwise, it tends
 23 to be more - it tends to be the end user who
 24 puts together these different combinations who
 25 will then have to ensure that the system

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1 they've put together is compatible. Similar
 2 requirements certainly on the aviation side,
 3 in the UK the Civil Aviation Authority
 4 required compatibility assessments of suits
 5 and life jackets, and that was put on the
 6 helicopter suit manufacturers, I think,
 7 because there were a limited range of life
 8 jackets. So they actually had to test their
 9 suits in combination with the life jackets
 10 which would be worn. There isn't a straight
 11 answer to that one. At the end of the day,
 12 somebody needs to take responsibility for it.
 13 ROIL, Q.C.:

14 Q. And I think that's something we need to know.
 15 We tend to think in our little part of the
 16 world that everybody else has got answers, and
 17 I think what you're telling us is that these
 18 are problems in other parts of the world as
 19 well?

20 MS. COLESHAW:

21 A. That's what I would say.

22 ROIL, Q.C.:

23 Q. And it's important for us to know that. Okay,
 24 finally, I think you're going to talk about
 25 the technical standards for the EBS.

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1 MS. COLESHAW:

2 A. Yeah, and this was one of the original
 3 questions in issue #1 was what are the
 4 standards relating to this equipment. The
 5 answer with EBS is at the moment there isn't a
 6 published technical standard for EBS. I was
 7 actually involved in a project with our Civil
 8 Aviation Authority to develop what they ended
 9 up calling an example draft technical standard
 10 that was published within a CAA report back in
 11 2003, which at present that's the only
 12 published draft standard of any sort out
 13 there.

14 I'm currently working on a project for
 15 them to actually complete that standard, and
 16 part of the reason for it not being completed
 17 back in 2003 were that there were certain
 18 areas in terms of the performance of the EBS
 19 where we felt there wasn't sufficient
 20 information available in published data to be
 21 able to set clear performance criteria,
 22 possible criteria for tests. It's part of the
 23 current work that we'll come back to later in
 24 my presentation.

25 ROIL, Q.C.:

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1 Q. Yes, later in the presentation I think we deal
 2 with your current research on that.

3 MS. COLESHAW:

4 A. Yeah, what is at present and what is being
 5 developed are basic requirements that will
 6 cover the three generic types of devices we've
 7 talked about, so compressed air systems,
 8 rebreathers, and hybrid devices, just looking
 9 at work of breathing and breathing resistance.
 10 It's looking at minimum deployment times we
 11 talked about, something needed to be very
 12 quick to deploy; does that need to be one
 13 handed deployment, so that you can keep a hand
 14 on the nearest exit; if one hand is injured,
 15 can you still use it with the other hand, and
 16 it's looking at this issue of the different
 17 orientations, and it will cover compatibility,
 18 will cover snagging during escape, cold water
 19 performance, and the last one here, again
 20 buoyancy raised its head. In this case, it's
 21 additional buoyancy and this would relate just
 22 to these hybrid systems. If you've got a
 23 compressed air system, there's no problem with
 24 additional buoyancy, it's usually EBS. If you
 25 look at a rebreather, there's no additional

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1 buoyancy, just simply shifting air from the
 2 lungs into the counter lung, but with a hybrid
 3 system we are actually introducing some extra
 4 buoyancy, we're adding that extra three and a
 5 half litres of air into the system. So
 6 there's going to be a figure in there and a
 7 requirement that will be a maximum buoyancy
 8 allowable relating to that.

9 ROIL, Q.C.:

10 Q. So while there is a standard in the European
 11 Union for the suit itself, there is still not
 12 a standard with respect to the EBS?

13 MS. COLESHAW:

14 A. That's right, and at present the case is that
 15 the EBS must not in any way impair the
 16 performance of the suit. So again when our
 17 suit was assessed with the life jacket that's
 18 now most commonly used, it's called the lap
 19 life jacket, and that has got the hybrid
 20 rebreather as an integral part of the life
 21 jacket, and during the approval of that item,
 22 the Civil Aviation Authority wanted to be
 23 demonstrated that the rebreather didn't in any
 24 way interfere with the performance of the life
 25 jacket or the suit. They didn't approve the

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1 EBS as such, but they wanted assurances it
 2 wasn't interfering with the safety of the life
 3 jacket or the immersion suit.
 4 ROIL, Q.C.:
 5 Q. Okay, and the final piece of personal
 6 equipment that you're drawing our attention
 7 to, and again this is something that we've
 8 heard evidence on, is the personal locator
 9 beacon?
 10 MS. COLESHAW:
 11 A. That's right, and again this is a piece of
 12 equipment that is gradually becoming an
 13 accepted piece of equipment to be carried in
 14 terms of passengers. I think crew have
 15 probably carried them for some years, and not
 16 so many years for the passengers. These are
 17 to aid in the location of the individual, and
 18 this is in the rescue phase following a
 19 helicopter incident. So it's an additional
 20 aid on top of a light that's found either on
 21 the life jacket or the suit, and you have
 22 reflective tape that allows people to be
 23 picked up, and this is an extra aid to locate
 24 an individual. These things transmit on
 25 different frequencies. So the ones carried by

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1 pilots commonly have a distress frequency
 2 which will alert search and rescue
 3 organizations by satellite when an incident
 4 has occurred. The PLBs carried by passengers
 5 quite often only have a frequency that is used
 6 for homing. So this means that when the
 7 Search and Rescue facilities come to look for
 8 the incident and look for the individuals
 9 involved, that allows them to home in on the
 10 location of the accident and pick people up.
 11 ROIL, Q.C.:
 12 Q. Do you have any thoughts on whether or not
 13 these implements should be self-activating as
 14 opposed to activated by the wearer?
 15 MS. COLESHAW:
 16 A. Again if it's self-activating, it's one less
 17 thing for somebody in a distressing situation
 18 to have to remember to undertake, and again if
 19 it's manually activated, it quite often
 20 requires pressing a button or moving a lever
 21 and by the time they got to do that they're
 22 going to be in the water, their hands are
 23 already going to be starting to be cold, so
 24 they could well be trying to do that with a
 25 glove. So there are issues in terms of with a

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1 gloved hand, are you going to be able to
 2 activate the unit. So there are certainly
 3 benefits to have something that is
 4 automatically activated by the water.
 5 ROIL, Q.C.:
 6 Q. Okay. I think the next portion of your report
 7 deals with a separate issue, and this might
 8 perhaps, Commissioner, be a place that we
 9 would stop for the day because I think we
 10 won't get very far into this. We're about
 11 half way through the report now, so it would
 12 take a similar amount of time, about an hour
 13 or so tomorrow to get through the next part of
 14 the report.
 15 COMMISSIONER:
 16 Q. All right then, fine, we'll adjourn then until
 17 9:30.
 18 ROIL, Q.C.:
 19 Q. Thank you.
 20 (UPON CONCLUDING 5 P.M.)

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1 CERTIFICATE
 2 We, the undersigned, do hereby certify that
 3 the foregoing is a true and correct transcript of a
 4 hearing heard on the 28th day of June, 2010 at Tara
 5 Place, 31 Peet Street, Suite 213, St. John's
 6 Newfoundland and Labrador and was transcribed by us
 7 to the best of our ability by means of a sound
 8 apparatus.
 9 Dated at St. John's, NL this
 10 28th day of June, 2010
 11 Cindy Sooley
 12 Discoveries Unlimited Inc.
 13 Judy Moss
 14 Discoveries Unlimited Inc.

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