

**OFFSHORE HELICOPTER SAFETY INQUIRY**

*November 18, 2009*

*Tara Place, Suite 213, 31 Peet Street  
St. John's, NL*

November 18, 2009

**PRESENT:**

**John F. Roil, Q.C./**

**Anne Fagan.....Inquiry Counsel**

**Amy Crosbie. .... Canada-Newfoundland and Labrador Offshore  
..... Petroleum Board (C-NLOPB)**

**Ian Wallace/ ..... Hibernia Management and  
Cecily Strickland..... Development Company (HMDC)**

**D. Blair Pritchett ..... Suncor (Petro-Canada)**

**Alexander C. MacDonald, Q.C./**

**Nicholas M. Crosbie..... Husky Oil Operations Ltd.**

**Michael Cohen ..... Cougar Helicopters Inc.**

**Laura Brown Laengle ..... Government of Newfoundland and Labrador**

**Geoffrey Spencer..... Helly Hansen Canada Limited**

**Jamie Martin.....Families of Deceased Passengers**

**Kate O'Brien.....Davis Estate (Pilot) and  
..... agent on behalf of Douglas A. Latto for Lanouette Estate (Co-pilot)**

**V. Randell J. Earle, Q.C. .... Communications, Energy and Paperworkers Union  
..... Local 2121**

**David F. Hurley, Q.C. .... Offshore Safety and Survival Centre, Marine Institute**

TABLE OF CONTENTS  
November 18, 2009

MR. MARK COLLINS (SWORN)

Examination by Mr. John Roil, Q.C.....	Pgs. 1 – 168
Examination by Mr. Randell Earle, Q.C.....	Pgs.168 - 225
Examination by Ms. Kate O'Brien.....	Pgs. 225 – 235
Examination by Mr. Geoffrey Spencer.....	Pgs. 235 – 243

Certificate

Page 1	Page 3
<p>1 November 18, 2009</p> <p>2 COMMISSIONER:</p> <p>3 Q. Good morning, ladies and gentlemen. I guess,</p> <p>4 Mr. Roil, we're ready for the Helly Hansen</p> <p>5 presentation.</p> <p>6 ROIL, Q.C.:</p> <p>7 Q. Yes, Commissioner, good morning. We have with</p> <p>8 us this morning, Mr. Mark Collins of Helly</p> <p>9 Hansen Canada. I would ask that Mr. Collins</p> <p>10 be first sworn.</p> <p>11 MR. MARK COLLINS, SWORN, EXAMINATION BY JOHN ROIL, Q.C.</p> <p>12 REGISTRAR:</p> <p>13 Q. Would you state your name, please?</p> <p>14 MR. COLLINS:</p> <p>15 A. Mark Collins.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. Commissioner, there are a proposed list of</p> <p>18 exhibits for Helly Hansen. They are exhibits</p> <p>19 numbered--and I don't have the right list in</p> <p>20 front of me. Thank you. Exhibits numbered 65</p> <p>21 through 90.</p> <p>22 COMMISSIONER:</p> <p>23 Q. Yes.</p> <p>24 ROIL, Q.C.:</p> <p>25 Q. I would ask that they be admitted into</p>	<p>1 the operations manager for Helly Hansen Canada</p> <p>2 and I guess my background is I've been with</p> <p>3 Helly Hansen for a little over five years.</p> <p>4 ROIL, Q.C.:</p> <p>5 Q. Okay. Now you're speaking very quickly.</p> <p>6 MR. COLLINS:</p> <p>7 A. Sorry.</p> <p>8 ROIL, Q.C.:</p> <p>9 Q. Ask you to try to bring the pace down just a</p> <p>10 little bit.</p> <p>11 MR. COLLINS:</p> <p>12 A. So, yeah, I've been with Helly Hansen for a</p> <p>13 little over five years. I've held several</p> <p>14 roles at Helly Hansen, both in the sales and</p> <p>15 marketing and operational sides, with focus on</p> <p>16 our marine safety business.</p> <p>17 ROIL, Q.C.:</p> <p>18 Q. And prior to Helly Hansen, with whom were you</p> <p>19 employed in any way that might be relevant to</p> <p>20 your testimony here today?</p> <p>21 MR. COLLINS:</p> <p>22 A. Various positions that I've been involved with</p> <p>23 in the marine business, boat operators at</p> <p>24 yacht clubs for doing maintenance and on the</p> <p>25 water and those types of roles, as well as</p>
<p>1 evidence.</p> <p>2 COMMISSIONER:</p> <p>3 Q. Yes, they can be admitted then as of now.</p> <p>4 ROIL, Q.C.:</p> <p>5 Q. Oh, sorry. I'm sorry, there's another page,</p> <p>6 yes. So it's 65 to 92.</p> <p>7 COMMISSIONER:</p> <p>8 Q. Okay. Yes, okay then.</p> <p>9 ROIL, Q.C.:</p> <p>10 Q. Exhibit 65 is the PowerPoint presentation</p> <p>11 which has been prepared by Mr. Collins, and I</p> <p>12 would ask him to first bring it up like that.</p> <p>13 Good morning, sir.</p> <p>14 MR. COLLINS:</p> <p>15 A. Good morning.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. You are Mark Collins?</p> <p>18 MR. COLLINS:</p> <p>19 A. Correct.</p> <p>20 ROIL, Q.C.:</p> <p>21 Q. Mr. Collins, where do you live? What do you</p> <p>22 do and what is your background, please?</p> <p>23 MR. COLLINS:</p> <p>24 A. I live in Lower Sackville, Nova Scotia. Our</p> <p>25 head office is in Dartmouth, Nova Scotia. I'm</p>	<p>1 other sales jobs.</p> <p>2 ROIL, Q.C.:</p> <p>3 Q. Okay. Now you have prepared, I understand, a</p> <p>4 PowerPoint presentation for us on behalf of</p> <p>5 Helly Hansen Canada Limited and if you'd--I</p> <p>6 don't know if you can see how you can control</p> <p>7 that with the mouse there. I hope you've had</p> <p>8 a chance to practice. Yeah, go back to the</p> <p>9 first page. Explain to us, if you will, the</p> <p>10 overview of what it is you intend to speak to</p> <p>11 us about today?</p> <p>12 MR. COLLINS:</p> <p>13 A. Well, start obviously with the corporate</p> <p>14 overview of our company, go through our</p> <p>15 documented Helly Hansen quality management</p> <p>16 system, go through our aeronautical</p> <p>17 maintenance organization, so our suit</p> <p>18 maintenance facilities, talk about some of the</p> <p>19 staff that we have on board that would have</p> <p>20 been involved in suit design and development,</p> <p>21 our involvement with the Canadian General</p> <p>22 Standards Board, the request for proposal in</p> <p>23 terms of how we replied to the current request</p> <p>24 for the current contract of provision and</p> <p>25 maintenance of helicopter transport suits, the</p>

Page 5	Page 7
<p>1 start-up process of that contract, more into 2 the details of our service and maintenance of 3 our suit system. From the start of the 4 contract, we'll go over issues arising. We'll 5 go through some changes as part of the return 6 to flight process and then we'll be open for 7 questions. 8 ROIL, Q.C.: 9 Q. I understand that you brought a special guest 10 here this morning, who's hung up on the right- 11 hand side for view? 12 MR. COLLINS: 13 A. Yes. This is the Nautilus E-452 helicopter 14 transport suit that is in service today. 15 ROIL, Q.C.: 16 Q. Okay. This may not be available to those who 17 are watching on television or through the web, 18 but there is an actual copy of the E-452 which 19 at some point in time I'm sure you'll be asked 20 to go to and describe and make some comments 21 on. It might be possible for us to move that 22 closer to where you're sitting at some point 23 for you to be able to be on the camera while 24 we're doing it, but let's just see how that 25 works out.</p>	<p>1 Helly Hansen Sport Leisure and then Helly 2 Hansen Canada. 3 MR. COLLINS: 4 A. Yes. In the Canadian market, there is a split 5 that there is a corporately-owned sport 6 leisure division office on the west coast and 7 that we are the Canadian licensee for 8 industrial work wear and the North American 9 licensee for marine safety products. 10 ROIL, Q.C.: 11 Q. And that license comes from whom? 12 MR. COLLINS: 13 A. From Helly Hansen Global, Norway. 14 ROIL, Q.C.: 15 Q. Okay, and you are--just I guess, a question, 16 do you have to get special permission from 17 time to time or are you sort of generally 18 authorized to manufacture under the label 19 Helly Hansen? How does that work? 20 MR. COLLINS: 21 A. We've been the licensee for Helly Hansen in 22 Canada for 27 years. Obviously our license 23 contracts do have renewal periods and dates 24 and that would be reviewed every few years, 25 and our license allows us to build our</p>
<p>1 MR. COLLINS: 2 A. Okay. 3 ROIL, Q.C.: 4 Q. Okay. Tell us then a little bit about who 5 Helly Hansen is. 6 MR. COLLINS: 7 A. Helly Hansen Global is based out of Moss, 8 Norway. It is broken into three groups. One 9 is obviously the sport leisure group, which 10 would deal with ski snowboard clothing, 11 technical running clothing, not related to 12 industrial or marine safety. The next section 13 is Helly Hansen Pro, which would deal with 14 industrial work wear globally, and then 15 there's a special products division that does 16 survival suits and other products in the 17 European market. 18 ROIL, Q.C.: 19 Q. These are companies that are all owned or 20 controlled by whom? 21 MR. COLLINS: 22 A. They are all owned or controlled by the parent 23 company of Helly Hansen. 24 ROIL, Q.C.: 25 Q. Okay. Now then we see below that there's</p>	<p>1 industrial work wear products and marine 2 safety products under the Helly Hansen brand 3 and also our company, the licensee, also owns 4 the Nautilus by Protexion brand and also owns 5 the Buoy-O-Boy brand, which we purchased when 6 we purchased Protexion Products in 2006. 7 ROIL, Q.C.: 8 Q. Okay, so the trade brands Helly Hansen and I 9 see up in the upper left-hand corner of your 10 slide something called Nautilus by Protexion. 11 MR. COLLINS: 12 A. Correct. 13 ROIL, Q.C.: 14 Q. That's a trade brand that operates in Canada, 15 is it? 16 MR. COLLINS: 17 A. That is a trade brand, yes. 18 ROIL, Q.C.: 19 Q. Okay, and the name Buoy-O-Boy, which I think I 20 remember from my childhood on life jackets, 21 that's also a brand that you make? 22 MR. COLLINS: 23 A. Yes. 24 ROIL, Q.C.: 25 Q. So who is Helly Hansen Canada Limited? Is</p>

Page 9	Page 11
<p>1 that a Canadian company, a Nova Scotia 2 company?</p> <p>3 MR. COLLINS:</p> <p>4 A. It's a Nova Scotia company, owned and operated 5 company, based out of Dartmouth, Nova Scotia.</p> <p>6 ROIL, Q.C.:</p> <p>7 Q. Okay, and are you an owner of the company or 8 are you a -</p> <p>9 MR. COLLINS:</p> <p>10 A. I'm an employee.</p> <p>11 ROIL, Q.C.:</p> <p>12 Q. Thank you.</p> <p>13 MR. COLLINS:</p> <p>14 A. So in terms of Helly Hansen Canada Limited's 15 operations, Dartmouth Nova Scotia is our head 16 office and Eastern Distribution Centre for 17 retail products. We have a Western 18 Distribution Centre for retail products. We 19 have our Nova Scotia suit maintenance facility 20 in Dartmouth, Nova Scotia, and we also have 21 our Newfoundland suit maintenance facility 22 here in St. John's.</p> <p>23 ROIL, Q.C.:</p> <p>24 Q. Okay. Now I'm just going to ask you a few 25 questions generally about that. First of all,</p>	<p>1 before us today?</p> <p>2 MR. COLLINS:</p> <p>3 A. No.</p> <p>4 ROIL, Q.C.:</p> <p>5 Q. Okay. Then there's the Nova Scotia Suit 6 Maintenance Facility in Dartmouth. What 7 happens there and how many people are employed 8 and what do you do in that facility?</p> <p>9 MR. COLLINS:</p> <p>10 A. That facility has a steady state of employees 11 of approximately six people. We would have 12 some manufacturing staff that would shift from 13 our manufacturing plant for clothing into our 14 survival suit room. So that location, we do 15 product testing. We do suit maintenance as we 16 would do here in Newfoundland, and that is 17 where our quality control is based out of for 18 suit production and maintenance.</p> <p>19 ROIL, Q.C.:</p> <p>20 Q. Okay, and do you have any work in Nova Scotia 21 that relates to the offshore in that province?</p> <p>22 MR. COLLINS:</p> <p>23 A. We supply the E-452 to the operations of the 24 Sable project and for EnCana as well.</p> <p>25 ROIL, Q.C.:</p>
<p>Page 10</p> <p>1 Helly Hansen Canada Limited with its head 2 office and Eastern Distribution Centre in 3 Dartmouth, Nova Scotia, what number of people 4 approximately are employed there and what 5 happens at that facility?</p> <p>6 MR. COLLINS:</p> <p>7 A. Okay, at that facility, we have approximately 8 80 employees. So that would encompass 9 everything from customer service, order entry, 10 distribution, manufacturing. Our design 11 department is based there. Purchasing is 12 based there, both for raw materials and 13 finished goods, and then our operations 14 management staff is based there.</p> <p>15 ROIL, Q.C.:</p> <p>16 Q. Okay, and what particular pieces of equipment 17 and gear do you manufacture at that facility?</p> <p>18 MR. COLLINS:</p> <p>19 A. At that facility, we build everything from 20 thermal undergarments, protective rainwear, 21 survival suits, PFDS, life jackets and 22 inflatable PFDS.</p> <p>23 ROIL, Q.C.:</p> <p>24 Q. From your Western Distribution Centre, does 25 that have any relevance to anything that is</p>	<p>Page 12</p> <p>1 Q. And are those serviced by that facility?</p> <p>2 MR. COLLINS:</p> <p>3 A. They are serviced by that facility, yes.</p> <p>4 ROIL, Q.C.:</p> <p>5 Q. How long has that facility been in operation?</p> <p>6 MR. COLLINS:</p> <p>7 A. Since 1993.</p> <p>8 ROIL, Q.C.:</p> <p>9 Q. Now the Newfoundland Suit Maintenance 10 Facility, which is said to be in St. John's, 11 describe perhaps in a little more detail what 12 happens in that particular facility.</p> <p>13 MR. COLLINS:</p> <p>14 A. That facility will do suit maintenance, 15 certification and cleaning and inspection of 16 the transport suits that are used offshore, 17 primarily the E-452. So at that location, 18 they would pick up suits coming in from 19 offshore, do liner exchanges, visual 20 inspections and we'll get more into the detail 21 of the individual steps in suit maintenance, 22 but they would maintain the fleet of suits 23 that is used by personnel going offshore 24 Newfoundland.</p> <p>25 ROIL, Q.C.:</p>

Page 13	Page 15
<p>1 Q. Okay, and how many employees do you have in 2 the Newfoundland facility?</p> <p>3 MR. COLLINS:</p> <p>4 A. 11 right now.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. Just as an aside, not related to this 7 particularly, but so we don't forget it 8 perhaps later on, because it may become 9 relevant, what are the major competitors of 10 your company with respect to the provision of 11 the survival suits and that kind of equipment 12 within Canada?</p> <p>13 MR. COLLINS:</p> <p>14 A. Mustang, Viking, Fitzwright, White's.</p> <p>15 ROIL, Q.C.:</p> <p>16 Q. Sorry, Fitzwright, yeah, we've heard some of 17 those names.</p> <p>18 MR. COLLINS:</p> <p>19 A. Now on the helicopter suit side, the only two 20 that I'm aware of is Mustang and Viking. The 21 others would be primarily universal fit marine 22 abandonment suits.</p> <p>23 ROIL, Q.C.:</p> <p>24 Q. Okay. We've heard some of these names before 25 and we'll see the names again, so I just</p>	<p>1 that is the latest revision of that ISO 2 quality control procedures.</p> <p>3 ROIL, Q.C.:</p> <p>4 Q. Okay. Some of us in the room know a little 5 bit about ISO. Some people in the room may 6 know even less, and some people at home may 7 know even less. Could you just give us a 8 brief, your understanding of what ISO is and 9 what it attempts to do by certification of 10 organizations?</p> <p>11 MR. COLLINS:</p> <p>12 A. This particular certification is regarding the 13 quality management systems of the 14 organization. They will come in and do 15 inspections of your quality management 16 systems. So it is a standard that you can be 17 approved to in all its parts and there are 18 different ISO standards and I'll point to the 19 previous registrations. The difference 20 between our designation from 1998 to 1999 and 21 then onwards from that is that in the ISO 22 9001, you have quality procedures for design 23 and product development and those would also 24 be audited. So depending on the components 25 that you include in your quality management</p>
<p>1 wanted to get sort of a general overview. So 2 in your Eastern Distribution Centre, you said 3 you do design and manufacture of the survival 4 suits?</p> <p>5 MR. COLLINS:</p> <p>6 A. The survival suits and other products as well, 7 so other marine safety products, PFDs, life 8 jackets, thermal clothing, rainwear.</p> <p>9 ROIL, Q.C.:</p> <p>10 Q. Okay. What checks and balances, in terms of 11 quality control, do you have over the facility 12 that is in Dartmouth?</p> <p>13 MR. COLLINS:</p> <p>14 A. The first, and this actually quality 15 management system is for all our facilities, 16 that we have registered ISO quality management 17 system.</p> <p>18 ROIL, Q.C.:</p> <p>19 Q. Okay, again, just can we -</p> <p>20 MR. COLLINS:</p> <p>21 A. Sorry.</p> <p>22 ROIL, Q.C.:</p> <p>23 Q. - slow it a little bit, please?</p> <p>24 MR. COLLINS:</p> <p>25 A. Our current registration is ISO 9001:2008 and</p>	<p>1 system would indicate (a) the ISO registration 2 that you would have, and (b) during your 3 audits, the pieces of the business that they 4 would come in and audit.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. Okay. So that's 9001. What's 9002?</p> <p>7 MR. COLLINS:</p> <p>8 A. The 9002, it would be the same, but without 9 the quality procedures for design.</p> <p>10 ROIL, Q.C.:</p> <p>11 Q. Okay. So product development would be in 12 9002?</p> <p>13 MR. COLLINS:</p> <p>14 A. Product development would be in 9001, but not 15 in the 9002.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. Okay.</p> <p>18 MR. COLLINS:</p> <p>19 A. So in our current registration, and 20 registration that we've had since '99.</p> <p>21 ROIL, Q.C.:</p> <p>22 Q. So what happens once you attain this? 23 Perhaps--I don't know if you have now access 24 to the exhibits. We have Exhibit No. 2.</p> <p>25 MR. COLLINS:</p>

Page 17

1 A. That's this one here. So that's our  
 2 certification of registration, which is  
 3 Exhibit 67, and it's for design, manufacture  
 4 and distribution of cold foul weather gear,  
 5 flame retardant products, personal floatation  
 6 device, rainwears, waders, deck boots,  
 7 helicopter transport survival and survival  
 8 suit leasing. So it encompasses all the areas  
 9 of our business.

10 ROIL, Q.C.:

11 Q. Okay, and if you scan down to the bottom of  
 12 that visual, I think it will show a company,  
 13 something called SAI Global.

14 MR. COLLINS:

15 A. Yes.

16 ROIL, Q.C.:

17 Q. Who are SAI Global.

18 MR. COLLINS:

19 A. SAI Global would be the independent company  
 20 that would come in and do our audits.

21 ROIL, Q.C.:

22 Q. Okay, and so what happens from the time you've  
 23 been given your registration to when a  
 24 different registration is brought in? Is  
 25 there an audit every year, every ten years?

Page 18

1 MR. COLLINS:

2 A. The audit system is both internal and  
 3 external.

4 ROIL, Q.C.:

5 Q. Yes.

6 MR. COLLINS:

7 A. So we would have an internal audit process  
 8 that then would be reviewed by the SAI Global  
 9 externally annually and then there would be  
 10 feedback based on the results from the audits.  
 11 So we are--to maintain our registration, we  
 12 are subject to an annual external audit and we  
 13 have audits at both facilities done, at our  
 14 Dartmouth location and at the Airport Road  
 15 location here in Newfoundland.

16 ROIL, Q.C.:

17 Q. Okay, and the requirement to internally audit  
 18 yourself is one of the requirements of the ISO  
 19 regime, is it?

20 MR. COLLINS:

21 A. Correct.

22 ROIL, Q.C.:

23 Q. So you must have your own internal audit, but  
 24 they also do an external audit?

25 MR. COLLINS:

Page 19

1 A. Yes.

2 ROIL, Q.C.:

3 Q. Now with that particular piece of  
 4 registration, are you able to manufacture and  
 5 sell and market survival suits within Canada?

6 MR. COLLINS:

7 A. Yes.

8 ROIL, Q.C.:

9 Q. You are? Is anything else required for  
 10 survival suits?

11 MR. COLLINS:

12 A. Well, for survival suits in Canada, yes. For  
 13 the maintenance organization, Transport  
 14 Canada--and I'll go to the next slide actually  
 15 of the presentation. So both our service  
 16 facilities are approved aeronautical  
 17 maintenance organizations and I'm just going  
 18 to go to an exhibit. Exhibit 68 is our  
 19 certification from Transport Canada that we  
 20 are an approved maintenance organization.

21 ROIL, Q.C.:

22 Q. We actually heard some evidence from Transport  
 23 Canada, when they were in earlier in the  
 24 process, and they talked about approved  
 25 maintenance organizations, but we didn't see

Page 20

1 any certificates. So let's just take a moment  
 2 to look at these, and so can you take us  
 3 through the various certificates and what they  
 4 do or what they enable you to do or what they  
 5 limit you to do?

6 MR. COLLINS:

7 A. Okay. So based on the CARS or the Canadian  
 8 Aviation Regulations, various certificates  
 9 would be given to us for certain sections. So  
 10 this first certificate, which is 4-94, is in  
 11 regard to maintaining components. So  
 12 components would include items like lights,  
 13 PLBs, valves, you know, zippers. So the  
 14 actual components of the suit, so that would  
 15 be the individual pieces that make up the suit  
 16 system.

17 ROIL, Q.C.:

18 Q. Okay.

19 MR. COLLINS:

20 A. So then the next one, which is 399, is  
 21 manufacture and certification of aeronautical  
 22 products. Because the approval is on the  
 23 suits, Transport Canada has approved our  
 24 maintenance procedures and allow us to  
 25 manufacture and to certify aeronautical



Page 21

1 products, and in particular, our suit system.  
 2 So they focus it down to specific suit systems  
 3 and on the next page, you'll see that it  
 4 relies to helicopter passenger transport  
 5 suits, the E-352 series and E-452 series.  
 6 ROIL, Q.C.:  
 7 Q. Okay. Now we have, for the first time, we've  
 8 introduced a new number. We've spoken in our  
 9 evidence here before your coming today about  
 10 the E-452 and I believe that's the model that  
 11 you have with you today.  
 12 MR. COLLINS:  
 13 A. The E-452, correct.  
 14 ROIL, Q.C.:  
 15 Q. Yeah. What is the E-352?  
 16 MR. COLLINS:  
 17 A. The E-352 would be the previous version of a  
 18 helicopter transport suit and it was approved  
 19 to the older versions of the standards. So  
 20 obviously when you do have standards change  
 21 come in and as part of the requirement for the  
 22 contracts, we had to approve to the latest  
 23 standards available, and we developed the E-  
 24 452 as a basis for testing to those standards.  
 25 ROIL, Q.C.:

Page 22

1 Q. Okay. Was the E-352 ever used in offshore  
 2 Newfoundland and Labrador?  
 3 MR. COLLINS:  
 4 A. It would have been used seldomly, just for  
 5 specific short-term contracts.  
 6 ROIL, Q.C.:  
 7 Q. Okay. Was it used anywhere else in Canada?  
 8 MR. COLLINS:  
 9 A. In Nova Scotia, it had been used for seven or  
 10 eight years.  
 11 ROIL, Q.C.:  
 12 Q. Okay.  
 13 MR. COLLINS:  
 14 A. The next certificate that we see is our type  
 15 certificate, AP-22. So that is our approval  
 16 number pursuant to the Canadian Aviation  
 17 Regulations for the following products. So  
 18 there was actually four variations of the E-  
 19 352 and the E-452 helicopter passenger  
 20 transport suit system, and this is the latest  
 21 update of that certificate.  
 22 ROIL, Q.C.:  
 23 Q. So as I understand it from the evidence of the  
 24 earlier Transport Canada witnesses, not only  
 25 does the facility have to be approved by them,

Page 23

1 but the actual unit itself?  
 2 MR. COLLINS:  
 3 A. Correct. The approval for the maintenance  
 4 facility and maintenance procedures is  
 5 separate from the product.  
 6 ROIL, Q.C.:  
 7 Q. Okay, and what is required, what do you have  
 8 to go through, what kind of steps do you go  
 9 through to seek and get these kinds of  
 10 approvals and certificates?  
 11 MR. COLLINS:  
 12 A. For the maintenance procedures, the  
 13 maintenance procedures are developed by Helly  
 14 Hansen and approved by Transport Canada, based  
 15 on the work and the product that you're  
 16 working on. So we would have to develop all  
 17 the procedures. We would have to update the  
 18 procedures as required, and any updates, we  
 19 would have to seek Transport Canada's approval  
 20 in that Transport Canada won't give us a  
 21 direct guideline, "you have to do it this  
 22 way." What they will do is "yes, your current  
 23 methodology is correct" and we'll do the work  
 24 as per the Canadian Aviation Regulations or  
 25 they will tell you, "no, go back and work on

Page 24

1 it."  
 2 ROIL, Q.C.:  
 3 Q. So they don't tell you how to do it? They  
 4 either approve it or send it back?  
 5 MR. COLLINS:  
 6 A. They either approve your maintenance  
 7 procedures or not.  
 8 ROIL, Q.C.:  
 9 Q. Yes.  
 10 MR. COLLINS:  
 11 A. As far as the product, the product would be  
 12 tested as per the Canadian General Standards  
 13 Board's standard, which we saw that CAPP  
 14 introduced and we also have as exhibits for  
 15 helicopter transport suits. So you would have  
 16 to get a third party to do all the testing for  
 17 you based on that standard. You would--if  
 18 your product involves a life jacket, you would  
 19 also have to have the testing to show  
 20 compliance with--I'm getting a little ahead of  
 21 myself here--and we'll go over the standards  
 22 as well.  
 23 ROIL, Q.C.:  
 24 Q. Yeah, I think we're going to spend a little  
 25 more time on the standards, so let's just keep

Page 25	Page 27
<p>1 on.</p> <p>2 MR. COLLINS:</p> <p>3 A. Yeah, later on.</p> <p>4 ROIL, Q.C.:</p> <p>5 Q. Okay, but in terms of Transport Canada, do</p> <p>6 they do--do they issue a certificate for all</p> <p>7 time or do they audit? What are the ongoing</p> <p>8 requirements with respect to them?</p> <p>9 MR. COLLINS:</p> <p>10 A. We are subject to annual and unannounced</p> <p>11 audits by Transport Canada, in being that if</p> <p>12 Transport Canada happened to be in Halifax</p> <p>13 next week and wanted to pop in, they could do</p> <p>14 an audit, but also we are subject to audits of</p> <p>15 all our maintenance procedures. In terms of</p> <p>16 the product certificates, if a new standard</p> <p>17 comes out, you are given a certain amount of</p> <p>18 time and which will be dictated by Transport</p> <p>19 Canada that you can continue to build that</p> <p>20 standard and then you would have to upgrade</p> <p>21 any new production to the latest standards.</p> <p>22 ROIL, Q.C.:</p> <p>23 Q. Now what we've spoken about so far is the</p> <p>24 aviation side of things. There is another</p> <p>25 exhibit that you've brought, Exhibit No. 70.</p>	<p>1 You also have your oral inflation tube and the</p> <p>2 inflatable life jacket is actually built into</p> <p>3 the suit and starts here, goes up around the</p> <p>4 head, behind the neck, comes back down this</p> <p>5 side of the suit. So rather than having to</p> <p>6 put the suit on first and then secondary, put</p> <p>7 a life jacket on over top of it, you just have</p> <p>8 to put the suit on and it's built right into</p> <p>9 the suit.</p> <p>10 ROIL, Q.C.:</p> <p>11 Q. Yeah, the suit is a life jacket as well?</p> <p>12 MR. COLLINS:</p> <p>13 A. Yes.</p> <p>14 ROIL, Q.C.:</p> <p>15 Q. Okay, and so this is the standard, this is the</p> <p>16 Transport Canada monitoring on that aspect of</p> <p>17 your suit?</p> <p>18 MR. COLLINS:</p> <p>19 A. Correct, and that they accepted the testing of</p> <p>20 the helicopter transport suit of either the</p> <p>21 M88, so the 1988 version of the standard or</p> <p>22 the '99 version of the standard and all our</p> <p>23 testing was done in the '99 or the latest</p> <p>24 version of the standard. We also have, as</p> <p>25 Exhibit 71, is the marine approval</p>
<p>1 MR. COLLINS:</p> <p>2 A. Okay. Special conditions - Airworthiness.</p> <p>3 This one in particular has to do with the</p> <p>4 inflatable on the suit system. Historically</p> <p>5 and most helicopter transport suit systems</p> <p>6 have an external inflatable life jacket, so it</p> <p>7 would be a separate component that would be</p> <p>8 tested separately to the -- get to my</p> <p>9 approvals -- to the TSO standard, C13F, which</p> <p>10 is a technical standing order for inflatable</p> <p>11 life jackets for aviation.</p> <p>12 ROIL, Q.C.:</p> <p>13 Q. Okay.</p> <p>14 MR. COLLINS:</p> <p>15 A. Where we have a special condition as obviously</p> <p>16 some of the donning requirements in the</p> <p>17 standard are not feasible to do because our</p> <p>18 life jacket is integrated into the suit.</p> <p>19 ROIL, Q.C.:</p> <p>20 Q. By integrated, you mean the life jacket -</p> <p>21 MR. COLLINS:</p> <p>22 A. Being that it's built into the suit, so rather</p> <p>23 than having a separate component, and I'll</p> <p>24 just go up to the suit system, this is your</p> <p>25 inflatable pull tab which is a CO2 inflated.</p>	<p>1 certificate.</p> <p>2 ROIL, Q.C.:</p> <p>3 Q. Okay. Now we've been talking, up until now,</p> <p>4 about aviation approvals?</p> <p>5 MR. COLLINS:</p> <p>6 A. Yes.</p> <p>7 ROIL, Q.C.:</p> <p>8 Q. Okay. Why is a marine approval also required?</p> <p>9 MR. COLLINS:</p> <p>10 A. In the request for proposal from the</p> <p>11 operators, they requested that we provide a</p> <p>12 suit that was tested and approved to both the</p> <p>13 aviation and the marine approvals, or the</p> <p>14 marine standards, sorry.</p> <p>15 ROIL, Q.C.:</p> <p>16 Q. And again, if we look at this certificate, at</p> <p>17 the bottom I think it refers to a date of</p> <p>18 December of '06?</p> <p>19 MR. COLLINS:</p> <p>20 A. Correct. It was issued December 18th, 2006,</p> <p>21 and is effective until December 31, 2011, at</p> <p>22 which either it can be renewed, if this is</p> <p>23 still the latest version of the standard, or</p> <p>24 any new product that we manufacture, we would</p> <p>25 have to test and build to any updated standard</p>

Page 29	Page 31
<p>1 that would be published between now and 2011.</p> <p>2 So for the next slide, we move into our</p> <p>3 industry expert experience and expertise. Our</p> <p>4 Nova Scotia Suit Maintenance Facility has been</p> <p>5 supplying and maintaining helicopter transport</p> <p>6 suit systems since '93 in the Nova Scotia</p> <p>7 market to the Sable project and other</p> <p>8 projects, and our Newfoundland facility was</p> <p>9 established in the fall of 2007, upon award of</p> <p>10 the current contract from the Grand Bank</p> <p>11 operators, which is made up of Hibernia</p> <p>12 Management and Development Corporation, Husky</p> <p>13 and Suncor.</p> <p>14 ROIL, Q.C.:</p> <p>15 Q. Suncor being PetroCanada at the time?</p> <p>16 MR. COLLINS:</p> <p>17 A. PetroCanada at the time, yes.</p> <p>18 ROIL, Q.C.:</p> <p>19 Q. Yes, okay.</p> <p>20 MR. COLLINS:</p> <p>21 A. To talk about some key people in our</p> <p>22 organization. Donald Mah, who is the head of</p> <p>23 R &amp; D, has 19 years experience in product</p> <p>24 development design and research, and I'm just</p> <p>25 going to pull up his CV. So Donald has worked</p>	<p>1 MR. COLLINS:</p> <p>2 A. Yes, he would.</p> <p>3 ROIL, Q.C.:</p> <p>4 Q. Okay, and yeah, you mentioned--I see by his CV</p> <p>5 that he was involved with a company called</p> <p>6 Protexion Products. That's the company -</p> <p>7 MR. COLLINS:</p> <p>8 A. That's the company that we purchased in '06.</p> <p>9 ROIL, Q.C.:</p> <p>10 Q. Right, okay.</p> <p>11 MR. COLLINS:</p> <p>12 A. Brian Farnworth is a senior research</p> <p>13 scientist. He has over 25 years of industry</p> <p>14 experience and a variety of Government</p> <p>15 industrial research institutions in applying</p> <p>16 science to development of protective clothing</p> <p>17 and equipment. He also worked for Mustang</p> <p>18 previously. He has worked for Gore Products.</p> <p>19 He has worked -</p> <p>20 ROIL, Q.C.:</p> <p>21 Q. Gore Products, is that the Gore-Tex name that</p> <p>22 we -</p> <p>23 MR. COLLINS:</p> <p>24 A. Correct.</p> <p>25 ROIL, Q.C.:</p>
<p style="text-align: right;">Page 30</p> <p>1 with Mustang Survival, Protexion Products and</p> <p>2 then he came to us as part of our acquisition</p> <p>3 of Protexion Products. He has worked on a</p> <p>4 vast array of life safety systems products as</p> <p>5 an engineer. That includes products for NASA</p> <p>6 astronauts, all the way to fighter pilots. So</p> <p>7 he has a lot of experience in terms of life</p> <p>8 preserver units, survival suits and immersion</p> <p>9 suits.</p> <p>10 ROIL, Q.C.:</p> <p>11 Q. And is he actually a full-time employee of the</p> <p>12 organization?</p> <p>13 MR. COLLINS:</p> <p>14 A. He is. Yes, he is.</p> <p>15 ROIL, Q.C.:</p> <p>16 Q. Okay, working out of your Dartmouth facility?</p> <p>17 MR. COLLINS:</p> <p>18 A. He actually works on the west coast.</p> <p>19 ROIL, Q.C.:</p> <p>20 Q. On the west coast of?</p> <p>21 MR. COLLINS:</p> <p>22 A. Of Canada, so he's based in BC.</p> <p>23 ROIL, Q.C.:</p> <p>24 Q. Yes, I see. Would he have been involved in</p> <p>25 the development of the E-452?</p>	<p style="text-align: right;">Page 32</p> <p>1 Q. - we hear of and see on recreational clothing?</p> <p>2 MR. COLLINS:</p> <p>3 A. That's it.</p> <p>4 ROIL, Q.C.:</p> <p>5 Q. Yeah.</p> <p>6 MR. COLLINS:</p> <p>7 A. Worked with Government clients in both</p> <p>8 industrial and recreational markets. So his</p> <p>9 expertise comes in terms of thermal testing,</p> <p>10 thermal performance of suits, and cold water</p> <p>11 protection.</p> <p>12 ROIL, Q.C.:</p> <p>13 Q. Okay. Again, is he a full-time employee?</p> <p>14 MR. COLLINS:</p> <p>15 A. No, he is on contract to us probably about 50</p> <p>16 percent of the time. And then, last is Larry</p> <p>17 Spears. He's the manager of floatation</p> <p>18 products. He also has over 25 years</p> <p>19 experience in marine safety, including</p> <p>20 training, testing, helicopter escape training.</p> <p>21 He was a RIB instructor and also product</p> <p>22 development. So he brings a lot of experience</p> <p>23 from the end users perspective into our</p> <p>24 product development team.</p> <p>25 ROIL, Q.C.:</p>

Page 33

1 Q. Is he a full-time employee?  
 2 MR. COLLINS:  
 3 A. He is, yes.  
 4 ROIL, Q.C.:  
 5 Q. Now the next two exhibits I'd ask you to bring  
 6 up and just have available, we won't talk  
 7 about them initially, but are the two exhibits  
 8 which are the CGSB standards for the  
 9 helicopter passenger transportation suit and  
 10 the immersion suit. We just have them  
 11 available.  
 12 MR. COLLINS:  
 13 A. Okay.  
 14 ROIL, Q.C.:  
 15 Q. Anybody following our proceedings would have  
 16 been aware of the evidence that was given  
 17 yesterday and the day previously by the CAPP  
 18 organization about their involvement, so tell  
 19 us what your involvement with and your  
 20 understanding of the CGSB and how it  
 21 undertakes the setting of standards and how it  
 22 enforces it and that sort of thing, just some  
 23 general information about CGSB and your  
 24 involvement with it.  
 25 MR. COLLINS:

Page 34

1 A. Okay. Well, the first part of the slide, I  
 2 just took straight from the CGSB website on  
 3 October 18th, that "the Canadian General  
 4 Standards Board is a Federal Government  
 5 organization that offers client-centred,  
 6 comprehensive standards development and  
 7 conformity assessment services in support of  
 8 economic regulatory procurement, health,  
 9 safety and environmental interests of our  
 10 stakeholders, government, industry and  
 11 consumers." So the CGSB acts as the liaison  
 12 for the community, and I say community and  
 13 community would involve manufacturers,  
 14 operators, end users, scientists, testing  
 15 facilities, so the broader community can be  
 16 involved in the CGSB process, and would bring  
 17 the community together to have discussions and  
 18 to set standards. So in regards to the  
 19 standards that are involved with the E-452,  
 20 the CGSB has published the two standards,  
 21 immersion suit systems, CAN/CGSB 65.16- 2005  
 22 and also the helicopter passenger transport  
 23 suit system, CAN/CGSB 65.17-99.  
 24 ROIL, Q.C.:  
 25 Q. Okay, and they are exhibits number 73 and 74

Page 35

1 that I think you've brought up?  
 2 MR. COLLINS:  
 3 A. That we have available, yes.  
 4 ROIL, Q.C.:  
 5 Q. Yeah, okay. So particularly with respect to  
 6 this suit and any other suits that you've been  
 7 involved in, what has been your personal  
 8 interaction with the CGSB and what has been  
 9 the interaction of others within your  
 10 organization that you're aware of?  
 11 MR. COLLINS:  
 12 A. Our liaison with the CGSB is actually Larry  
 13 Spears. He's currently in Ottawa for the CGSB  
 14 meetings that are taking place this week.  
 15 ROIL, Q.C.:  
 16 Q. We were told yesterday that in fact this week  
 17 the standard for the helicopter transportation  
 18 suit is being reviewed?  
 19 MR. COLLINS:  
 20 A. Correct. This is the first group meeting of  
 21 the committee members where they're meeting in  
 22 Ottawa to discuss the current helicopter  
 23 transport suit standard and commencing the  
 24 review of that standard for the development of  
 25 the next version of that standard. So our

Page 36

1 involvement with CGSB is that we provide  
 2 representatives with subject matter expertise.  
 3 Obviously with Larry's experience, he is a  
 4 great person to have on our staff to take part  
 5 in that committee, at our own expense, to  
 6 provide input and be part of the community  
 7 that will develop the standards of which  
 8 products are tested to, and we actually sit on  
 9 more than just these two CGSB committees. We  
 10 also sit on committees for life jackets, PFDs,  
 11 inflatables. So there are multiple CGSB  
 12 standards, depending on the type of product  
 13 for marine safety.  
 14 ROIL, Q.C.:  
 15 Q. Okay. Does the CGSB have all of the marine  
 16 safety standards? We know of things like  
 17 Underwriters Laboratory and CSA as other  
 18 standards organizations. Do they have -  
 19 MR. COLLINS:  
 20 A. To the best of my knowledge, they would have  
 21 them all. In some of their standards, they  
 22 may reference some UL or Underwriters  
 23 Laboratory standards out of the US with  
 24 Canadian amendments to them.  
 25 ROIL, Q.C.:

Page 37

1 Q. I see, but the CGSB has all the marine things  
 2 in Canada?  
 3 MR. COLLINS:  
 4 A. Correct.  
 5 ROIL, Q.C.:  
 6 Q. Okay. Now take you to the helicopter  
 7 transportation suit and just inside the front  
 8 page, there's a list of the committee members.  
 9 MR. COLLINS:  
 10 A. Correct.  
 11 ROIL, Q.C.:  
 12 Q. Now again, we had some evidence from CAPP on  
 13 this, but there's some companies here like  
 14 Survival Systems Limited. We're aware of that  
 15 company in Dartmouth. You're aware of it as  
 16 well, I take it?  
 17 MR. COLLINS:  
 18 A. Correct.  
 19 ROIL, Q.C.:  
 20 Q. Okay, and Transport Canada, but I see Mustang  
 21 Survival Corporation. Is this the company  
 22 that is a competitor of yours?  
 23 MR. COLLINS:  
 24 A. It is, yes.  
 25 ROIL, Q.C.:

Page 38

1 Q. Okay, and Fitzwright Company Limited is there.  
 2 MR. COLLINS:  
 3 A. Correct.  
 4 ROIL, Q.C.:  
 5 Q. And White's Manufacturing.  
 6 MR. COLLINS:  
 7 A. It is, yes.  
 8 ROIL, Q.C.:  
 9 Q. Okay, so how does CGSB choose who to have on  
 10 their committee, do you know?  
 11 MR. COLLINS:  
 12 A. My understanding is that it is open to any  
 13 stakeholders that the standard may apply to.  
 14 So it is an open process. They obviously do  
 15 not want to have it stacked, and I say their  
 16 membership stacked in one direction too much  
 17 or the other that you don't want a committee  
 18 that is only made up of manufacturers or only  
 19 made up of end users. You want to cover the  
 20 spectrum of people involved in the community,  
 21 all the way from top down. So everybody from  
 22 manufacturers to users to operators to  
 23 regulators to--so that way you have a broader  
 24 scope of input into the development of the  
 25 standards.

Page 39

1 ROIL, Q.C.:  
 2 Q. Now if we look at the actual standard itself,  
 3 and I don't want to take it line by line, but  
 4 so that again the public understand what is a  
 5 standard? Is this a blueprint? Is it a  
 6 pattern? What does the standard set out with  
 7 respect to the transportation suit?  
 8 MR. COLLINS:  
 9 A. The standard is really broken into three  
 10 areas. The first one is individual component  
 11 testing. So an example I would say is seam  
 12 strength. So one of the seams of the suits  
 13 where we attach two pieces of materials must  
 14 meet a certain strength requirement. So  
 15 there's individual component testing on  
 16 durability. There's, you know, testing on  
 17 zippers. There's testing on all the  
 18 individual pieces that go into the suit. So  
 19 there's component requirement testing.  
 20 There's a section on human subject testing.  
 21 ROIL, Q.C.:  
 22 Q. Sorry, just stop you there. So the suit we  
 23 have in front of us has about a three-foot  
 24 zipper right at the front. Does it tell you  
 25 that it must have a three-foot zipper?

Page 40

1 MR. COLLINS:  
 2 A. No. What it would tell us is that the--and we  
 3 can go into the section of the standard, but  
 4 it would tell us the strength that the zipper  
 5 has to hold, the diagonal pull strength.  
 6 There's a salt water spray testing that the  
 7 zipper cannot corrode and jam in. So there's  
 8 performance criteria for the zipper, not the  
 9 zipper has to be made exactly this way.  
 10 ROIL, Q.C.:  
 11 Q. Okay, so it's performance oriented?  
 12 MR. COLLINS:  
 13 A. Yes.  
 14 ROIL, Q.C.:  
 15 Q. Rather than length and diameter?  
 16 MR. COLLINS:  
 17 A. Correct.  
 18 ROIL, Q.C.:  
 19 Q. Or width or whatever?  
 20 MR. COLLINS:  
 21 A. Yeah, the only time you'll see length  
 22 measurements and that is for issues regarding  
 23 to like snag hazards, where you can't have any  
 24 loose ends that are more than 100 millimetres  
 25 or any loops that a 25-millimetre rod could

Page 41

1 pass through. But that's, once again, based  
 2 on a performance criteria.  
 3 ROIL, Q.C.:  
 4 Q. All right.  
 5 MR. COLLINS:  
 6 A. Moving away from the component testing, you  
 7 would then have human subject testing. So  
 8 that is both dryland and in-water testing. So  
 9 there's mobility testing. There would be life  
 10 raft--you'd have to turn over a life raft and  
 11 be able to board a life raft, climb ladders.  
 12 There's, you know, face plane testing. So  
 13 there's performance criteria that you actually  
 14 need an array of subjects to go do and pass  
 15 the performance level, but that's done with  
 16 actual live people, both in the pool and on  
 17 the pool deck, and then the last piece of it  
 18 is thermal mannequin testing. So the thermal  
 19 mannequin testing is made up both of human  
 20 subject performance testing, as well as  
 21 testing the thermal insulation of the suit.  
 22 ROIL, Q.C.:  
 23 Q. I'm motioning you to slow down a bit, because  
 24 I suspect there's people trying to take notes.  
 25 MR. COLLINS:

Page 42

1 A. No worries, no worries.  
 2 ROIL, Q.C.:  
 3 Q. Okay.  
 4 MR. COLLINS:  
 5 A. I'll blame the French Canadian blood in me for  
 6 speaking quickly. So yeah, so that really  
 7 makes up the three parts of the standard, but  
 8 all performance based. So a standard does not  
 9 say, you know, the suit has to look or be  
 10 built like this. It may say, you know, seams  
 11 need to be this strong. Figure out a way to  
 12 make it happen.  
 13 ROIL, Q.C.:  
 14 Q. Right.  
 15 MR. COLLINS:  
 16 A. It will say that, you know, test subjects must  
 17 be this range, but it will not tell you to  
 18 build a suit exactly this long or a zipper  
 19 three-feet long or so it's all based around  
 20 performance.  
 21 ROIL, Q.C.:  
 22 Q. Okay. So if a competitor of yours were to  
 23 build a suit to the same standard, would it be  
 24 identical to yours?  
 25 MR. COLLINS:

Page 43

1 A. No.  
 2 ROIL, Q.C.:  
 3 Q. Okay. Would it look like yours in any way?  
 4 MR. COLLINS:  
 5 A. It would be similar.  
 6 ROIL, Q.C.:  
 7 Q. Yes.  
 8 MR. COLLINS:  
 9 A. Where you could see, you know, specifically  
 10 one of our competitors products from the  
 11 content that's publicly available has, as far  
 12 as I know, the same boots, would use similar  
 13 zipper combination into it, in terms of a  
 14 split face seal design, would have neoprene  
 15 cuffs that would be similar. So I mean the  
 16 suits would look similar.  
 17 ROIL, Q.C.:  
 18 Q. Yeah.  
 19 MR. COLLINS:  
 20 A. But there may be differentiators in terms of  
 21 specific features.  
 22 ROIL, Q.C.:  
 23 Q. Okay. Is the bright orange colour something  
 24 that is dictated?  
 25 MR. COLLINS:

Page 44

1 A. The colour typically has to be orange, yellow  
 2 or red, one of the primary visible colours for  
 3 marine safety products.  
 4 ROIL, Q.C.:  
 5 Q. What about the floatation within the  
 6 helicopter transportation suit system? What  
 7 are the issues in terms of floatation?  
 8 MR. COLLINS:  
 9 A. Well, in terms of floatation, there's a  
 10 minimum total buoyancy, and I can reference  
 11 the standard. In terms of the total buoyancy  
 12 of the suit system with both inherent, i.e.  
 13 foam buoyancy and the inflatable element, must  
 14 be above a certain level. But also, in the  
 15 helicopter transport suit, there's one that's  
 16 called maximum escape buoyancy. So that is  
 17 tested so that the suit cannot be so buoyant  
 18 to impede egress from a submerged helicopter.  
 19 ROIL, Q.C.:  
 20 Q. Okay, so how would buoyancy affect your  
 21 ability to get out of the helicopter?  
 22 MR. COLLINS:  
 23 A. Obviously, the more buoyant you are, the  
 24 quicker you're going to rise to the surface,  
 25 and the surface inside an aircraft that's

Page 45

1 overturned could be -- you know, the floor  
 2 where you could get pinned, and the example  
 3 that I would give would be when you travel by  
 4 airplane and they give you the pre-flight  
 5 briefing in terms of donning the inflatable,  
 6 they say inflate when you get to the door, not  
 7 prior, for the exact same reasons, where if  
 8 you're trapped in a submerged aircraft and  
 9 you're now wearing a buoyancy element that is  
 10 so buoyant that you cannot get down to get out  
 11 a window or an escape door, you are going to  
 12 be stuck. So they do have a maximum escape  
 13 buoyancy test in the standard to show that  
 14 you'd be under 117 neutons.  
 15 ROIL, Q.C.:  
 16 Q. And neutons are some sort of a measure of  
 17 buoyancy?  
 18 MR. COLLINS:  
 19 A. Yeah, 150 neutons is 33.9 pounds of buoyancy  
 20 is the conversion, so it's a method of  
 21 measuring buoyancy.  
 22 ROIL, Q.C.:  
 23 Q. So buoyancy for a helicopter transportation  
 24 suit has two aspects. You must have a certain  
 25 level, but not too much?

Page 46

1 MR. COLLINS:  
 2 A. Yes.  
 3 ROIL, Q.C.:  
 4 Q. The way a layman might express it?  
 5 MR. COLLINS:  
 6 A. Yes, that's correct, and in -- I guess, I want  
 7 to address one of the issues with designing a  
 8 suit system approved to two standards.  
 9 ROIL, Q.C.:  
 10 Q. Yes, I was going to take you next to the  
 11 standard for immersion suit. First of all,  
 12 what is your understanding of what the  
 13 immersion suit standard is designed for  
 14 primarily?  
 15 MR. COLLINS:  
 16 A. The immersion suit standard is designed  
 17 primarily for a quick donning suit that will  
 18 provide protection to the person from wind,  
 19 waves, and water for marine application for  
 20 abandoning ship. Whether that ship is a  
 21 supply boat or a fishing boat, those suits  
 22 would be used in a wider array of applications  
 23 and typically it would not be a size suit, it  
 24 would be a universal fit suit.  
 25 ROIL, Q.C.:

Page 47

1 Q. Okay, we'll get to sizing and things a little  
 2 later on, but that's okay. Are there any  
 3 issues with respect to buoyancy in the  
 4 immersion suit that are different from those  
 5 in the passenger transportation helicopter  
 6 suits?  
 7 MR. COLLINS:  
 8 A. The immersion suit standard calls for a  
 9 minimum inherent buoyancy, so buoyancy made up  
 10 by foam or neoprene or a solid buoyant product  
 11 of 70 neutons. So now what happens is when  
 12 you're trying to meet a maximum requirement in  
 13 one standard, and you have a minimum  
 14 requirement in the other, you now have to work  
 15 in that gap. So now you have to work very  
 16 diligently in that gap and that's why, you  
 17 know, the E-452 suit system has features like  
 18 the valve on the top of the hood that allows  
 19 trapped air from inside the suit to escape the  
 20 suit so that if you go in the water with the  
 21 suit, it will self vent and allow the air  
 22 that's trapped in the suit to get out, so your  
 23 buoyancy is less, and you wouldn't necessarily  
 24 see that feature in a marine abandonment suit.  
 25 ROIL, Q.C.:

Page 48

1 Q. Okay. You mentioned sizing. Is there -- do  
 2 the standards dictate the sizes that can or  
 3 should be made? What is dictated by the  
 4 standards in terms of sizing?  
 5 MR. COLLINS:  
 6 A. The standards would dictate the size of the  
 7 test subjects, so you would have to have a  
 8 range of test subjects, and that you must  
 9 obviously provide product that would be worn  
 10 by those subjects, and that's the aviation  
 11 standard. The marine standard of the  
 12 immersion suit systems, and I'm just going to  
 13 find the page and reference, specifies that  
 14 typically there would be three sizes being  
 15 small, universal, and jumbo, and they would  
 16 give a range for height and mass, but you do  
 17 not see that in the aviation standard because  
 18 it opens up to having more than three sizes  
 19 available. So in our suit system originally  
 20 there was seven sizes, and now we're up to  
 21 eleven.  
 22 ROIL, Q.C.:  
 23 Q. Okay, we'll get into that in more detail as we  
 24 go through your evidence. So other than the  
 25 things like buoyancy, are there any other

Page 49

1 challenges in putting together the two  
 2 standards into one particular suit?  
 3 MR. COLLINS:  
 4 A. There are, and you have to work with both  
 5 regulators to come to an agreement. One would  
 6 be the buddy line. So the buddy line is  
 7 located here in the suit. The buddy line's  
 8 intent is to be deployed so that you can  
 9 connect multiple people in the water together,  
 10 so you can stay together as a group, and in  
 11 the one standard it calls -- in the marine  
 12 standard it calls for the strength of the  
 13 buddy line to be between 400 and 1340 neutons.  
 14 So the strongest it can be is 1340 neutons.  
 15 In the aviation standard, it says it can not  
 16 be any weaker than 1350 neutons. So you're  
 17 into a situation of one standard's minimum is  
 18 higher than the other standard's maximum.  
 19 ROIL, Q.C.:  
 20 Q. So what happens when you do that, do you have  
 21 to get a concession from somebody?  
 22 MR. COLLINS:  
 23 A. Yes, I mean, we went to both regulators and TC  
 24 Marine agreed that we would go with the test  
 25 method for the aviation as it was a more

Page 50

1 stringent test.  
 2 ROIL, Q.C.:  
 3 Q. Okay.  
 4 MR. COLLINS:  
 5 A. So that would be one example. Another example  
 6 of some differences in testing where in other  
 7 -- you know, the fabric is the same in both  
 8 suits because it is one suit system, but oil  
 9 resistance testing, you have more chemicals  
 10 that the suit has to be protected against.  
 11 That would be another -- you know, if you  
 12 approved the one standard, you may have more  
 13 fabric options than if you could -- if you  
 14 work towards both standards.  
 15 ROIL, Q.C.:  
 16 Q. Something that's come up in earlier evidence,  
 17 and this is not something that you and I have  
 18 spoken about before, so I'm going to ask the  
 19 question and see where the answer takes us.  
 20 There seems to be some evidence that the pilot  
 21 and co-pilot on helicopters wear a different  
 22 suit. Are you familiar at all with the suit  
 23 that they wear?  
 24 MR. COLLINS:  
 25 A. It is correct that they wear a different suit.

Page 51

1 Typically they would wear what's called a  
 2 pilot suit, but Helly Hansen does not  
 3 manufacture a pilot suit.  
 4 ROIL, Q.C.:  
 5 Q. Okay. Would the pilot suit be built to a  
 6 different standard again?  
 7 MR. COLLINS:  
 8 A. I believe so. I'm not an expert on pilot  
 9 suits and it's not one of the areas that we've  
 10 been focusing development.  
 11 ROIL, Q.C.:  
 12 Q. Okay, the final piece of background  
 13 documentation that I'd ask you to take  
 14 yourself to is Exhibit #75, which seems to be  
 15 something issued by the Federal Aviation  
 16 Administration in the United States. Can you  
 17 explain what this document has in terms of  
 18 relevance to our proceedings? Just close it,  
 19 and we'll try again.  
 20 MR. COLLINS:  
 21 A. There we go. This is the technical standing  
 22 order for FAA. So this is for the inflatable  
 23 element. So for inflatable jackets used in  
 24 aviation applications. So this would be the  
 25 same test method that would be used for life

Page 52

1 jackets on an airplane.  
 2 ROIL, Q.C.:  
 3 Q. Yes.  
 4 MR. COLLINS:  
 5 A. So that would be for the life jacket element  
 6 of the suit and that is where we earlier saw  
 7 the SCA, which is Standard Condition of  
 8 Approval, or Special Conditions Airworthiness,  
 9 sorry, which is Exhibit 70, in regards to  
 10 Transport Canada Aviation approving our  
 11 inflatable to the helicopter transport  
 12 standard because of certain donning  
 13 restrictions where it's built into the suit.  
 14 ROIL, Q.C.:  
 15 Q. Okay, why does the FAA become involved,  
 16 though, as a federal -- a federal American  
 17 agency?  
 18 MR. COLLINS:  
 19 A. That is the standard that is chosen for that  
 20 specific product and the Canadian authorities  
 21 have just decided to use the US --  
 22 ROIL, Q.C.:  
 23 Q. Okay.  
 24 MR. COLLINS:  
 25 A. The US standard.



Page 53	Page 55
<p>1 ROIL, Q.C.:</p> <p>2 Q. Now I think in your earlier evidence, you</p> <p>3 indicate that prior to 2006 you were not</p> <p>4 involved -- or 2007, you were not involved in</p> <p>5 Newfoundland?</p> <p>6 MR. COLLINS:</p> <p>7 A. Correct, we did not have a maintenance</p> <p>8 facility here in Newfoundland.</p> <p>9 ROIL, Q.C.:</p> <p>10 Q. Sorry, yeah, you did not have a maintenance</p> <p>11 facility and you were not manufacturing the</p> <p>12 then current suit that was used by passengers</p> <p>13 in the offshore?</p> <p>14 MR. COLLINS:</p> <p>15 A. Correct.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. What happened to change that?</p> <p>18 MR. COLLINS:</p> <p>19 A. The operators -- and we'll go back to the</p> <p>20 presentation. The next slide is the operators</p> <p>21 put out a request for proposal in the fall of</p> <p>22 2006 for suit services to provide -- and we'll</p> <p>23 bring up the RFP as an exhibit.</p> <p>24 ROIL, Q.C.:</p> <p>25 Q. It's Exhibit #76.</p>	<p>1 and maintenance of helicopter passenger suits</p> <p>2 to be used at offshore locations in Nova</p> <p>3 Scotia and Newfoundland and Labrador,</p> <p>4 including the Sable Project, Hibernia Project,</p> <p>5 Terra Nova, White Rose Projects, and any other</p> <p>6 projects as determined by the operators. So</p> <p>7 this was a maintenance and supply contract.</p> <p>8 ROIL, Q.C.:</p> <p>9 Q. Okay, so you were to supply and maintain?</p> <p>10 MR. COLLINS:</p> <p>11 A. Supply and maintain a helicopter -- a suit</p> <p>12 that was approved to both the helicopter</p> <p>13 transport standard and the marine standard.</p> <p>14 ROIL, Q.C.:</p> <p>15 Q. I'd ask you now perhaps to go to the actual</p> <p>16 exhibit, and I think the scope of work is</p> <p>17 actually 1.2, which you have already quoted.</p> <p>18 You head down to 2.2 below that, it specifies</p> <p>19 what the work is to be within Newfoundland and</p> <p>20 Labrador which is our focus here today.</p> <p>21 MR. COLLINS:</p> <p>22 A. Correct.</p> <p>23 ROIL, Q.C.:</p> <p>24 Q. So this is the job specification for all three</p> <p>25 projects?</p>
Page 54	Page 56
<p>1 MR. COLLINS:</p> <p>2 A. So how that came about is a request for</p> <p>3 proposal and the next few slides will through</p> <p>4 the core blocks of what was requested, was</p> <p>5 published by the Grand Banks Operators in</p> <p>6 Newfoundland and Labrador, Exxon Mobil in Nova</p> <p>7 Scotia, for the provision and maintenance of</p> <p>8 helicopter transport suits. So we were -- we</p> <p>9 replied to that request for proposal, and it</p> <p>10 gave the option to quote on both Newfoundland</p> <p>11 and Nova Scotia, or just Newfoundland, or just</p> <p>12 Nova Scotia. Obviously, we already had a suit</p> <p>13 maintenance facility in Nova Scotia that had</p> <p>14 been there for many years, and we saw this as</p> <p>15 an opportunity to build our business and serve</p> <p>16 a larger part of the market, so we replied to</p> <p>17 the RFP.</p> <p>18 ROIL, Q.C.:</p> <p>19 Q. Okay, and was your reply successful? I think</p> <p>20 it was.</p> <p>21 MR. COLLINS:</p> <p>22 A. It was. We were notified on April 23rd, 2007,</p> <p>23 that we were the successful bidder for the</p> <p>24 RFP. So to go to the next slide, the RFP to</p> <p>25 cover the scope of work was for the provision</p>	<p>1 MR. COLLINS:</p> <p>2 A. This would be -- yes, for the Newfoundland --</p> <p>3 well, we've termed Grand Banks Operators, but</p> <p>4 for the three Hibernia Management -- well, at</p> <p>5 the time was Petro Canada, is now Suncor and</p> <p>6 Husky, for any of their operations.</p> <p>7 ROIL, Q.C.:</p> <p>8 Q. Within Nova Scotia, was Exxon the only</p> <p>9 operator there or was there a joint effort in</p> <p>10 that province as well?</p> <p>11 MR. COLLINS:</p> <p>12 A. At the time, Exxon was the only operator.</p> <p>13 ROIL, Q.C.:</p> <p>14 Q. Okay. Now under Newfoundland and Labrador, it</p> <p>15 talks about Petro Canada's persons on board,</p> <p>16 POB, and the Terra Nova facility is 120, and</p> <p>17 there's some other numbers there, could be</p> <p>18 150/160, and then similarly the White Rose and</p> <p>19 the Hibernia Platform. What was the</p> <p>20 understanding that you had of the scope of the</p> <p>21 amount of work that you were bidding against</p> <p>22 here?</p> <p>23 MR. COLLINS:</p> <p>24 A. Well, that information would be relevant as to</p> <p>25 how many suits we would suggest as part of our</p>

Page 57

1 bid would be required to service that many  
 2 persons offshore.  
 3 ROIL, Q.C.:  
 4 Q. Okay.  
 5 MR. COLLINS:  
 6 A. So that would be the POBs.  
 7 ROIL, Q.C.:  
 8 Q. So this was necessary information for you to  
 9 have to do your bid?  
 10 MR. COLLINS:  
 11 A. Yes, it was. It was necessary information in  
 12 terms of understanding the size of work and  
 13 the number of people offshore, so how that  
 14 would relate to the number of suits in the  
 15 suit pool.  
 16 ROIL, Q.C.:  
 17 Q. Right, and did it tell you how many suits that  
 18 you should supply?  
 19 MR. COLLINS:  
 20 A. No, it did not. So it allowed the provision  
 21 for us to come back as part of our proposal to  
 22 go by -- servicing and maintaining suits this  
 23 way, and based on the number of people you  
 24 have offshore, we suggest that your suit pool  
 25 is 1200 suits.

Page 58

1 ROIL, Q.C.:  
 2 Q. Does 1200 suits mean that there are 1200  
 3 people and each person gets their own suit?  
 4 MR. COLLINS:  
 5 A. No, it does not.  
 6 ROIL, Q.C.:  
 7 Q. Okay.  
 8 MR. COLLINS:  
 9 A. 1200 suits is a pool of suits that is shared  
 10 amongst the operators that go through the  
 11 heliport. It's a number of suits that was  
 12 based on the number offshore, how many suits  
 13 obviously would have to be in service, and in  
 14 maintenance being re-certified, and then how  
 15 many suits would be required to operate daily  
 16 flights because those suits are exchanged. So  
 17 a person flying out, you know, today would do  
 18 their three week hitch offshore, fly back in  
 19 in the same suit, turn it in, the suit would  
 20 go through a maintenance cycle and then when  
 21 they arrive next time, they would come back  
 22 and get another suit of that size, but it may  
 23 not be that specific suit.  
 24 ROIL, Q.C.:  
 25 Q. Okay. So what would -- a 1200 suit pool, what

Page 59

1 number of persons would you anticipate could  
 2 be having access to that many suits? Would it  
 3 be larger than 1200 or smaller?  
 4 MR. COLLINS:  
 5 A. Yes. It's based on maintaining the offshore  
 6 workforce, so we estimate that a 1200 suit  
 7 pool could cover a workforce of over 3000  
 8 people.  
 9 ROIL, Q.C.:  
 10 Q. Now then in 3.3 there is a particular  
 11 requirement that, I guess, we need to speak  
 12 about a little bit.  
 13 MR. COLLINS:  
 14 A. 3.3 is that the helicopter transport suit  
 15 supply -- so 3.3 is specific to that the  
 16 operator has requested that the suit that you  
 17 were going to supply must meet the current  
 18 Transport Canada aviation suit standard and  
 19 the current Transport Canada Marine standard.  
 20 So you had to supply a suit that had both  
 21 approvals.  
 22 ROIL, Q.C.:  
 23 Q. Did you then have a suit in production at that  
 24 time that would have met both of those  
 25 requirements?

Page 60

1 MR. COLLINS:  
 2 A. As part of the bid process, you had to submit  
 3 all your testing reports and your approvals,  
 4 so when we submitted the bid, we had the E-452  
 5 approved to both those standards.  
 6 ROIL, Q.C.:  
 7 Q. Okay. So how did you -- I guess, would you  
 8 just do a development of a suit on spec, or  
 9 how would you come to put the energy into  
 10 doing that if the RFP wasn't out yet?  
 11 MR. COLLINS:  
 12 A. The previous suit system was also a dual  
 13 approved suit, and that the operators had  
 14 previous to the final RFP had obviously done  
 15 some documentation in terms of selecting  
 16 qualified bidders, and it was known that the  
 17 suit system request would continue to be a  
 18 dual approved suit.  
 19 ROIL, Q.C.:  
 20 Q. And so you say you had that 452 actually  
 21 developed at the time that the bid was put in?  
 22 MR. COLLINS:  
 23 A. Yes, because as part of the bid process, you  
 24 had to provide approval certificates as well  
 25 as all your test data.

Page 61	Page 63
<p>1 ROIL, Q.C.:</p> <p>2 Q. Now you mentioned the 3.52 as being a</p> <p>3 predecessor to this suit?</p> <p>4 MR. COLLINS:</p> <p>5 A. Correct.</p> <p>6 ROIL, Q.C.:</p> <p>7 Q. Were there significant or only minor changes</p> <p>8 between the two?</p> <p>9 MR. COLLINS:</p> <p>10 A. The 352 did not have, as you can see on the</p> <p>11 left chest of the suit or on the right side of</p> <p>12 the suit looking at the suit, did not have a</p> <p>13 spot to have an integrated HUEBA unit,</p> <p>14 breathing unit. Also in the standards test</p> <p>15 methods the test method for thermal</p> <p>16 requirement had changed from being flat water</p> <p>17 to in waves, which also then increased the</p> <p>18 thermal requirement performance of the suit,</p> <p>19 so there was obviously changes to the liner,</p> <p>20 tightening of seals, so the suit was held to a</p> <p>21 more stringent standard which required</p> <p>22 changes. Now looking at the suits, the 352 is</p> <p>23 also a bright orange suit with neoprene wrist</p> <p>24 cuffs and a similar face shield design to</p> <p>25 this, but a lot of internal changes in terms</p>	<p>1 the suit system. So it was one of the</p> <p>2 specified pieces within the RFP that, you</p> <p>3 know, not only does your suit have to meet the</p> <p>4 standard, there are certain additional</p> <p>5 features that we want as part of the suit</p> <p>6 system.</p> <p>7 ROIL, Q.C.:</p> <p>8 Q. So do I take it that the approval to the</p> <p>9 standard does allow things like changes in the</p> <p>10 boot?</p> <p>11 MR. COLLINS:</p> <p>12 A. The standard would allow you to test different</p> <p>13 boot configurations.</p> <p>14 ROIL, Q.C.:</p> <p>15 Q. Yes.</p> <p>16 MR. COLLINS:</p> <p>17 A. And currently we are allowed to put smaller</p> <p>18 components on the suit, so we would be able to</p> <p>19 go to smaller boots, but we would not be able</p> <p>20 to go to larger components without additional</p> <p>21 testing.</p> <p>22 ROIL, Q.C.:</p> <p>23 Q. And why is that?</p> <p>24 MR. COLLINS:</p> <p>25 A. Primarily because if you go to a larger boot,</p>
Page 62	Page 64
<p>1 of the liner configuration, the inner hoodie</p> <p>2 of the hood system, and where the PLBs and the</p> <p>3 HUEBAS are integrated in the suit changed with</p> <p>4 this version.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. The version that we have that you're looking</p> <p>7 at there has a pair of green rubber boots at</p> <p>8 the bottom of it.</p> <p>9 MR. COLLINS:</p> <p>10 A. Yes, it does.</p> <p>11 ROIL, Q.C.:</p> <p>12 Q. Okay. Is that something that is standard to</p> <p>13 immersion suits or to helicopter</p> <p>14 transportation suits?</p> <p>15 MR. COLLINS:</p> <p>16 A. There are different boot designs. You can go</p> <p>17 with what's known as a floppy boot, which is</p> <p>18 typically found on universal fit immersion</p> <p>19 suits, so the material of the leg continues</p> <p>20 down, does a bend, and they would glue a hard</p> <p>21 sole on the bottom, but doesn't really offer a</p> <p>22 lot of foot protection (a), and also this was</p> <p>23 a feature, as you can see in Exhibit 3.4 --</p> <p>24 sorry, line 3.4.2 in the RFP, insulated boots</p> <p>25 or equivalent dry suit boots will be part of</p>	<p>1 it equals more volume. More volume could</p> <p>2 affect things like escape buoyancy, larger</p> <p>3 seals could affect fit and water ingress, so</p> <p>4 anything that you go larger will require</p> <p>5 additional pool testing for on the suit.</p> <p>6 ROIL, Q.C.:</p> <p>7 Q. Okay. Now I take you to 3.5 of that exhibit.</p> <p>8 There's something about sizing.</p> <p>9 MR. COLLINS:</p> <p>10 A. Well, the bidders display a sizing chart which</p> <p>11 we did as part of our bid, describing the</p> <p>12 smallest to largest sizes your suit will fit,</p> <p>13 and the sizes being proposed for this</p> <p>14 contract, and then small size will fit a 90</p> <p>15 pound person, the largest will be 425. The</p> <p>16 average will be between 140 and 250.</p> <p>17 ROIL, Q.C.:</p> <p>18 Q. Other than the requirement to fit within this</p> <p>19 clause of the contract, were you to do any</p> <p>20 fitting or sizing with respect to individual</p> <p>21 employees?</p> <p>22 MR. COLLINS:</p> <p>23 A. Not at the start up of the contract, no.</p> <p>24 ROIL, Q.C.:</p> <p>25 Q. Okay. 3.6 is bidders must have the ability to</p>

Page 65	Page 67
<p>1 change out boots to different sizes. What 2 does -- what did you understand that 3 requirement to relate to? 4 MR. COLLINS: 5 A. As part of our bid, exactly as it says, I 6 mean, at the request of the operators, we must 7 be able to change the boots on the suit, and 8 as part of our bid package, we would have 9 indicated that, yes, that is possible, but 10 additional approval work would have been 11 required to keep the certification on the 12 suits to do that. 13 ROIL, Q.C.: 14 Q. Then 3.8 calls for the provision of personal 15 locator beacons and there are -- I notice two 16 different beacons; one for Nova Scotia and one 17 for Newfoundland? 18 MR. COLLINS: 19 A. Correct. 20 ROIL, Q.C.: 21 Q. What is that all about? 22 MR. COLLINS: 23 A. That would be the choice of the operators. 24 There is -- the individual projects chose to 25 use and asked us to supply two different</p>	<p>1 while the suit is sitting in a locker 2 offshore, it would not have a breathing system 3 attached to it. So prior to your flight, the 4 breathing system would be attached to your 5 suit at the heliport, you would wear it while 6 you're in the helicopter. When you land and 7 get to heli admin, this breathing system would 8 be taken off and stored. 9 ROIL, Q.C.: 10 Q. Okay. 11 MR. COLLINS: 12 A. And then would be used on in-bound out-bound 13 flights. So what they have assigned was 14 double the amount of units for each 15 helicopter, so that would allow you to have a 16 supply offshore on every installation, a 17 supply at the heliport, and a supply in 18 transit. 19 ROIL, Q.C.: 20 Q. And Helly Hansen was to manage that aspect of 21 the -- 22 MR. COLLINS: 23 A. We were simply to supply and maintain the 24 bottles. The handing out of the bottles would 25 be done by heli admin both offshore and at the</p>
<p>1 units. 2 ROIL, Q.C.: 3 Q. Okay, and what is that unit intended to do? 4 MR. COLLINS: 5 A. The personal locator beacons are an emergency 6 signalling device that when activated will 7 release a signal that can be tracked by Search 8 and Rescue. 9 ROIL, Q.C.: 10 Q. And then we move to 3.9. 11 MR. COLLINS: 12 A. That is the emergency breathing system or the 13 HUEBA that we would (a) supply; and (b), that 14 we would have our suit approved with this unit 15 on it, and as you can see on the left chest, 16 or if you're looking at the suit on the right 17 side, that unit is installed on the suit. 18 ROIL, Q.C.: 19 Q. Now at 3.9.4 there's a reference to 40 units 20 will be supplied per helicopter for passengers 21 travelling offshore. What does that mean in 22 relation to each suit? Did each suit not have 23 a breathing apparatus assigned to it? 24 MR. COLLINS: 25 A. No, the breathing systems are swapped out. So</p>	<p>1 heliport. So we would fill the bottles that 2 need to be filled, we would do the maintenance 3 on the bottles, but we would be dropping the 4 bottles off at the heliport, and from that 5 time to the flight it would be managed by 6 either, as I say, the staff onshore at Cougar 7 or the staff offshore at the heli admin. 8 ROIL, Q.C.: 9 Q. Okay, you refer to something called "heli 10 admin". Is that -- what is heli admin? 11 MR. COLLINS: 12 A. Heli admin would be the person offshore that 13 would meet passengers as they arrive or be 14 with passengers prior to them leaving. 15 ROIL, Q.C.: 16 Q. Would that be a Helly Hansen employee? 17 MR. COLLINS: 18 A. No, it is not. 19 ROIL, Q.C.: 20 Q. But is that person -- who's responsible for 21 supervising that person, if you will? 22 MR. COLLINS: 23 A. That person would be employed by the operators 24 in that particular installation. 25 ROIL, Q.C.:</p>

Page 69

1 Q. So by the designation, heli admin, it just  
 2 means that they have that function to do?  
 3 MR. COLLINS:  
 4 A. Correct.  
 5 ROIL, Q.C.:  
 6 Q. Okay, 3.1.0, bidder shall supply detailed  
 7 information on your capability for customizing  
 8 suits.  
 9 MR. COLLINS:  
 10 A. Yes.  
 11 ROIL, Q.C.:  
 12 Q. What was at that point in time your ability  
 13 for customizing suits?  
 14 MR. COLLINS:  
 15 A. We were able to produce suits with various  
 16 features. If we had to shorten legs or  
 17 shorten arms, or for people that were  
 18 identified by the operators, but once again  
 19 any changes to the design of the suit to keep  
 20 approval would require approval from Transport  
 21 Canada and require testing.  
 22 ROIL, Q.C.:  
 23 Q. Okay. So the suits you were making already  
 24 had that approval, did they, the standard  
 25 suits?

Page 70

1 MR. COLLINS:  
 2 A. The standard suits, the E-452, as we see, had  
 3 the Transport Canada approval, and if we were  
 4 going to make different variations of this  
 5 suit or make changes to the suit, we would  
 6 have to get those changes approved by  
 7 Transport Canada.  
 8 ROIL, Q.C.:  
 9 Q. And what kind of changes would you anticipate  
 10 in the expression "customizing" that would  
 11 happen to the suit, by way of example?  
 12 MR. COLLINS:  
 13 A. By way of example, if you had somebody that  
 14 had an extremely short leg length, you may  
 15 need to shorten the leg. If somebody had an  
 16 extremely large calf, you may have to cut the  
 17 boot down so it did not interfere with their  
 18 calf. You know, somebody who had shorter  
 19 arms, you may have to shorten up the sleeves.  
 20 So it would be for specific reasons for  
 21 personnel that were identified by the  
 22 operators that, you know, we want this  
 23 changed. It could be a larger boot. It could  
 24 be somebody that is five foot eight and has a  
 25 size 16 shoe. That would be one example of we

Page 71

1 may need to change out the boot and provide  
 2 them with a custom suit.  
 3 ROIL, Q.C.:  
 4 Q. Okay, perhaps we can move on to Section 4, and  
 5 it says the successful bidder shall maintain  
 6 and service the helicopter suits. So what did  
 7 you understand by maintain and service?  
 8 MR. COLLINS:  
 9 A. Well, maintain obviously as part of our  
 10 maintenance procedures, we have -- which are  
 11 approved by Transport Canada. We understood  
 12 that, as it said here, we'll deliver the suits  
 13 and life jackets, EBS, HUEBA units, and PLBS  
 14 to the heliport and pick them up when they  
 15 returned from offshore, that the helicopter  
 16 provider shall issue the suits, life vests,  
 17 EBS, HUEBA bottles to all passengers  
 18 travelling offshore, and that the helicopter  
 19 would receive them from in-bound flights, and  
 20 that we would pick them up from the heliport  
 21 after their one user cycle, and then we would  
 22 clean the suits, do our inspections and our  
 23 maintenance, any repairs, and leak testing as  
 24 per our maintenance procedures, and then --  
 25 ROIL, Q.C.:

Page 72

1 Q. We'll get into the details of that later.  
 2 MR. COLLINS:  
 3 A. Yeah, and then get the suits ready for service  
 4 again to be reused on flights.  
 5 ROIL, Q.C.:  
 6 Q. Okay, and did you at that point in time have a  
 7 facility in Newfoundland that would enable you  
 8 to do that?  
 9 MR. COLLINS:  
 10 A. No, we did not. As part of our bid package,  
 11 we indicated that we would have to start up a  
 12 facility.  
 13 ROIL, Q.C.:  
 14 Q. Okay, finally, I guess, the very bottom in the  
 15 evaluation clause, there's a -- the last page  
 16 of this exhibit. Yeah, right down at the very  
 17 bottom, scan down. Yeah, owners request the  
 18 bidder to supply a small, medium, large, and  
 19 extra large suits with the approved aviation  
 20 life jacket. Date of supply to be determined.  
 21 Is this -- what did you understand this to  
 22 mean in terms of what you were required to do?  
 23 MR. COLLINS:  
 24 A. Well, we would have to supply a finished good  
 25 or the suit for them for their evaluation of

Page 73

1 all the bidders.  
 2 ROIL, Q.C.:  
 3 Q. Oh, okay.  
 4 MR. COLLINS:  
 5 A. So they could see the suits, touch, feel, not  
 6 just run off documentation.  
 7 ROIL, Q.C.:  
 8 Q. Okay, so you actually had to give them four  
 9 different suits with the life jacket  
 10 incorporated, which it is in yours?  
 11 MR. COLLINS:  
 12 A. Yes, it is.  
 13 ROIL, Q.C.:  
 14 Q. On your slide, just want to take us to RFP  
 15 work requirements or suit requirements, the  
 16 second one, just to see whether we've covered  
 17 off all those different items.  
 18 MR. COLLINS:  
 19 A. One of the other features that they requested  
 20 be on the suit that is not required in the  
 21 standards is a spray hood.  
 22 ROIL, Q.C.:  
 23 Q. Okay.  
 24 MR. COLLINS:  
 25 A. And the spray hood is tucked away in the

Page 74

1 collar of the suit.  
 2 ROIL, Q.C.:  
 3 Q. I think during the break we'll probably move  
 4 the suit closer to you, but you can go over  
 5 there now, but I think we lose the audio  
 6 portion of your evidence if you stay there  
 7 long.  
 8 MR. COLLINS:  
 9 A. So the spray shield is actually stored in this  
 10 part behind the neck of the suit. You do have  
 11 the yellow pull tabs to deploy it. It is a  
 12 shield that you would grab, pull over your  
 13 head and pull down, which would put a clear  
 14 shield over your face. It velcros into this  
 15 area of the suit, so it will give you some  
 16 additional protection from wind and wave. So  
 17 that was an additional feature that was  
 18 requested as part of the bid. You know, we  
 19 had to attached a reusable nose clip on each  
 20 suit.  
 21 ROIL, Q.C.:  
 22 Q. Yeah, what's the nose clip to provide?  
 23 MR. COLLINS:  
 24 A. The nose clip is an additional piece of  
 25 equipment that if you're going to be

Page 75

1 submerged, you can actually put a nose clip --  
 2 it's located right here. So the clip can be  
 3 deployed, for lack of a better -- the clip can  
 4 be put on your nose to seal off your nose for  
 5 breathing. So we'll get that stored away  
 6 properly there. So those were additional  
 7 features that were requested as part of the  
 8 suit system that we delivered and had to be  
 9 integrated into the suit. That is -- really  
 10 covers off everything in that slide. In terms  
 11 of the personal locator beacons we already  
 12 touched on, there was two different units  
 13 requested and the unit that you see on the  
 14 suit today is the Sea Marshall 121.5.  
 15 ROIL, Q.C.:  
 16 Q. And which one -- perhaps just again, so we all  
 17 understand within the room, which unit it is.  
 18 MR. COLLINS:  
 19 A. This is the PLB unit. The antenna goes here,  
 20 goes -- wraps around the back of the neck and  
 21 down this side. This slide we already covered  
 22 off is just the delivery of the HUEBA system  
 23 for contract start up, and they specified the  
 24 specific system or an equivalent. We decided  
 25 to bid with the system that they requested,

Page 76

1 and we do have exhibits actually that have  
 2 information on both the PLB and the HUEBA  
 3 unit.  
 4 ROIL, Q.C.:  
 5 Q. Yeah, we'll get into that in more detail later  
 6 on.  
 7 MR. COLLINS:  
 8 A. Okay. So that is the HUEBA unit you see on  
 9 the suit today.  
 10 ROIL, Q.C.:  
 11 Q. Okay. To your knowledge, did any other of your  
 12 competitors bid on this project or would you  
 13 even know that?  
 14 MR. COLLINS:  
 15 A. I believe that two of our competitors did.  
 16 ROIL, Q.C.:  
 17 Q. And perhaps, Commissioner, this would be a  
 18 good time to take the mid morning break.  
 19 COMMISSIONER:  
 20 Q. All right then, we'll take the break now.  
 21 (RECESS)  
 22 ROIL, Q.C.:  
 23 Q. Commissioner, during the break we moved the  
 24 suit to a different location which hopefully  
 25 will allow the witness to make reference to it

Page 77

1 and perhaps to stand up, but still be close to  
 2 the microphone, and hopefully those persons  
 3 that are controlling the camera that is on him  
 4 will be able to pick that up as well. I think  
 5 you can probably see it a little better from  
 6 there as well.  
 7 COMMISSIONER:  
 8 Q. Yes.  
 9 ROIL, Q.C.:  
 10 Q. Mr. Collins, before we move on, I want to go  
 11 back to one point and I think in your  
 12 evidence, you indicated that one of the  
 13 differences between the 452 and the 352 was  
 14 that it had the pocket for the HUEBA, the  
 15 breathing device?  
 16 MR. COLLINS:  
 17 A. That is correct.  
 18 ROIL, Q.C.:  
 19 Q. And I think you told us that you had that 452  
 20 already developed prior to the tender being  
 21 let?  
 22 MR. COLLINS:  
 23 A. Correct.  
 24 ROIL, Q.C.:  
 25 Q. The proposal call. So my question to you is

Page 78

1 how did you know what you needed in terms of  
 2 that particular facility because I understand  
 3 that that was a new device for you to be  
 4 adding to your suits? When did you know and  
 5 how did you know that that was going to be a  
 6 part of the requirement?  
 7 MR. COLLINS:  
 8 A. Obviously our contract in Nova Scotia was  
 9 ending, so we would have been in contact with  
 10 the operators as to future requirements and it  
 11 was indicated that the future suit systems  
 12 would require the integration of a HUEBA unit.  
 13 Obviously, to do so, we would have had to  
 14 either (a) change the exiting suit system or  
 15 (b) develop a new suit system with that  
 16 feature.  
 17 ROIL, Q.C.:  
 18 Q. Okay, and so do I take it that this feature of  
 19 the sleeve for the HUEBA device was a part of  
 20 the 452?  
 21 MR. COLLINS:  
 22 A. Yes.  
 23 ROIL, Q.C.:  
 24 Q. And right from your first concept of bidding  
 25 on this contract, you were aware that this was

Page 79

1 an issue?  
 2 MR. COLLINS:  
 3 A. Yes.  
 4 ROIL, Q.C.:  
 5 Q. What year would that have been?  
 6 MR. COLLINS:  
 7 A. It would have been probably early 2006.  
 8 ROIL, Q.C.:  
 9 Q. Okay, if I take you then to Exhibit #77,  
 10 please. Actually, 77, perhaps 78, 79, we  
 11 should just have up, and perhaps even 80.  
 12 It's a series of documents, just get them up  
 13 and have them in reserve down there. Exhibit  
 14 #77 appears to me to be a document that has  
 15 been, and I will use the word "redacted". For  
 16 those that have not heard the word before who  
 17 are listening publicly, it has had items  
 18 eliminated from it for various reasons. So  
 19 what is this letter, who is it from, and what  
 20 does it tell us?  
 21 MR. COLLINS:  
 22 A. Okay. Just bear with me for two seconds. I'm  
 23 just catching up to get all the exhibits open.  
 24 Okay, so Exhibit 77 would be the contract  
 25 award letter that was issued to us, notifying

Page 80

1 us that we were the successful bidder for the  
 2 job, and it was issued to us from ExxonMobil  
 3 which was the coordinator for the three  
 4 operators for this bid.  
 5 ROIL, Q.C.:  
 6 Q. Okay, so this says, "On behalf of Hibernia  
 7 Management and Development Company and  
 8 ExxonMobil Canada's property, we are pleased  
 9 to award the work". Would you have gotten a  
 10 similar letter from Husky and Suncor, or is  
 11 this the only document that you got?  
 12 MR. COLLINS:  
 13 A. This would be the only document as part of the  
 14 RFP process. Rather than doing everything in  
 15 triplicate, the operators indicated that we  
 16 would be using one point of contact for the  
 17 administrative side of the RFP, so we only did  
 18 get one response.  
 19 ROIL, Q.C.:  
 20 Q. Okay, and this you received some time on or  
 21 after April 23rd, 2007?  
 22 MR. COLLINS:  
 23 A. Shortly -- we received it, an electronic  
 24 version that day.  
 25 ROIL, Q.C.:

Page 81	Page 83
<p>1 Q. Okay. Now I notice down in the second last 2 paragraph, you say, "Our current estimate of 3 date for commencement of work is [blank]". I 4 take it that was not left blank at the time 5 you did the letter? 6 MR. COLLINS: 7 A. No, and the date in there was May 1st. As you 8 can imagine, receiving this letter on April 9 23rd, to be ready to go for May 1st would have 10 been an impossibility. Obviously, we would 11 have had to manufacture suits. So as part of 12 our -- the pre-job meetings, we came to an 13 agreed start dates for both the Sable Project 14 in Nova Scotia, and for the projects in 15 Newfoundland, and those are indicated in the 16 other exhibits, the contract. 17 ROIL, Q.C.: 18 Q. Okay. So in early April, 2007, you were aware 19 that you were the successful bidder. At that 20 point in time you had not made very many of 21 these suits, I take it? 22 MR. COLLINS: 23 A. No, obviously without knowing that we were 24 going to get the work, you would not start 25 mass production of suit systems.</p>	<p>1 the specifics of the contract, start up date, 2 and we would have gone into production of the 3 suit. 4 ROIL, Q.C.: 5 Q. And how many suits did you intend to produce? 6 I think there was some redaction of the number 7 of suits for the different projects. You've 8 left some numbers out. 9 MR. COLLINS: 10 A. The total suit pool for Newfoundland is 1200 11 suits. 12 ROIL, Q.C.: 13 Q. Okay. 14 MR. COLLINS: 15 A. So we took out the specifics per operator. 16 ROIL, Q.C.: 17 Q. Yes, why did you do that? 18 MR. COLLINS: 19 A. Obviously, this was a bid where we had to 20 suggest the amount of suits per operator as 21 part of our bid. It is a five year contract, 22 so we are part way through that contract now, 23 and I did not feel like giving away 24 competitive intelligence to our competitors as 25 to what we bid per locations.</p>
<p>1 ROIL, Q.C.: 2 Q. Right. I'm not asking you your cost to 3 produce, but if one was to go into a store and 4 purchase something with that kind of 5 technology at a retail price, what would one 6 have to pay for something like that? 7 MR. COLLINS: 8 A. For the suit system, without the HUEBA, light, 9 or PLB, you would be between \$3,500.00 and 10 \$4,000.00. 11 ROIL, Q.C.: 12 Q. And with the other pieces of technology added 13 in? 14 MR. COLLINS: 15 A. We don't retail those other components, so 16 we've only purchased those for use in this 17 contract, and we're not retailers for those 18 products. 19 ROIL, Q.C.: 20 Q. Right. So what did you do after receiving 21 this contract? 22 MR. COLLINS: 23 A. The contract letter, obviously then our team 24 started to work with the operators, obviously 25 had meetings with them in terms of finalizing</p>	<p>1 ROIL, Q.C.: 2 Q. Okay, but in any event, you produced 1200 3 suits -- 4 MR. COLLINS: 5 A. The overall suit pool in Newfoundland is 1200 6 suits. 7 ROIL, Q.C.: 8 Q. In Newfoundland. How many in Nova Scotia in 9 addition to that? 10 MR. COLLINS: 11 A. 500 and change. 12 ROIL, Q.C.: 13 Q. Okay. 14 MR. COLLINS: 15 A. And on top of that, we would have had suits 16 for training facilities, et cetera. 17 ROIL, Q.C.: 18 Q. Right. Now you have then the next exhibit, 19 78, 79, and I guess 80, which are really three 20 contracts, they appear to be extracts from, or 21 extracts from contracts with respect to the 22 three operating companies? 23 MR. COLLINS: 24 A. Yes. So after we were the successful bidder, 25 obviously the three operators are independent</p>



Page 85	Page 87
<p>1 companies, so we had to have separate</p> <p>2 contracts with each operator, and those</p> <p>3 sections are just the scope of work of the</p> <p>4 contracts which would cover the same items as</p> <p>5 the RFP document, which we covered earlier,</p> <p>6 just with specifics to every operator.</p> <p>7 ROIL, Q.C.:</p> <p>8 Q. Okay, were there any significant or important</p> <p>9 changes in the contract from what was let to</p> <p>10 what was actually executed? Sometimes there's</p> <p>11 negotiation or an amendments phase. Were</p> <p>12 there any really significant changes to what</p> <p>13 you were to supply versus what you bid on?</p> <p>14 MR. COLLINS:</p> <p>15 A. In terms of equipment and maintenance</p> <p>16 facilities, no. We would have negotiated</p> <p>17 start up dates. So for the Nova Scotia</p> <p>18 project, it would have been September 10th,</p> <p>19 2007, and in Newfoundland, we would have</p> <p>20 started up November 1, 2007.</p> <p>21 ROIL, Q.C.:</p> <p>22 Q. What then interaction, if any, would you have</p> <p>23 had with the training institutes with respect</p> <p>24 to the use of this new piece of technology?</p> <p>25 MR. COLLINS:</p>	<p>1 the HUEBAS, the breath devices, so they were</p> <p>2 supplied and delivered as requested?</p> <p>3 MR. COLLINS:</p> <p>4 A. Yes, we -- for the start ups of both</p> <p>5 locations, the Sable and the Newfoundland</p> <p>6 operations, we had the required amounts of</p> <p>7 PLBs, HUEBAS and suits for contract start up</p> <p>8 on the start date.</p> <p>9 ROIL, Q.C.:</p> <p>10 Q. Okay. Your slide says there you were</p> <p>11 instructed by the high (phonetic) Grand Banks</p> <p>12 operators not to put them into service?</p> <p>13 MR. COLLINS:</p> <p>14 A. As we heard yesterday, there was some concerns</p> <p>15 regarding the training of those -- of training</p> <p>16 with those units, and until that was</p> <p>17 rectified, they did not want that to -- the</p> <p>18 bottles to go in service.</p> <p>19 ROIL, Q.C.:</p> <p>20 Q. So did they go in service in either Nova</p> <p>21 Scotia or Newfoundland?</p> <p>22 MR. COLLINS:</p> <p>23 A. No, they did not.</p> <p>24 ROIL, Q.C.:</p> <p>25 Q. Okay. What did you understand to be the</p>
<p>Page 86</p> <p>1 A. We would have entered discussions and have</p> <p>2 contracts with both MI and Survival Systems</p> <p>3 Limited to supply them with suits for</p> <p>4 training.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. And the suits that you supplied to them were</p> <p>7 separate from the suits that you supplied to</p> <p>8 the operators?</p> <p>9 MR. COLLINS:</p> <p>10 A. Correct. The training suits are not used in</p> <p>11 flight and are actually labelled with a foot</p> <p>12 and a half by ten inch label on the back of</p> <p>13 the suit in yellow so it's very visible,</p> <p>14 "Training Suit, not for flight use".</p> <p>15 ROIL, Q.C.:</p> <p>16 Q. Okay, why is that?</p> <p>17 MR. COLLINS:</p> <p>18 A. Obviously, things like chlorine in pools can</p> <p>19 damage materials over time. So a suit that</p> <p>20 was getting heavy use, especially in a pool</p> <p>21 environment with chlorine, we did not want to</p> <p>22 put into flight.</p> <p>23 ROIL, Q.C.:</p> <p>24 Q. Okay. If you go back to your PowerPoint, I</p> <p>25 think you refer there to on time delivery of</p>	<p>Page 88</p> <p>1 training issues that were of concern with</p> <p>2 respect to the breathing device?</p> <p>3 MR. COLLINS:</p> <p>4 A. Our understanding was there was some concerns</p> <p>5 around air embolisms in persons during</p> <p>6 training, for training with compressed air,</p> <p>7 and that, of course, can be life threatening,</p> <p>8 so it was being investigated prior to launch</p> <p>9 of the product.</p> <p>10 ROIL, Q.C.:</p> <p>11 Q. Do you have any personal knowledge yourself</p> <p>12 about those kinds of medical issues?</p> <p>13 MR. COLLINS:</p> <p>14 A. No, I'm not an expert on underwater breathing</p> <p>15 devices.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. Okay. And then there's an indication there</p> <p>18 was an orientation with staff at the heliport.</p> <p>19 What had to happen now to integrate your</p> <p>20 operation with the operations of Cougar at the</p> <p>21 heliport?</p> <p>22 MR. COLLINS:</p> <p>23 A. So we would have had staff at the heliport for</p> <p>24 flights to assist the Cougar staff with, you</p> <p>25 know, the tracking and issuing of suits. All</p>

Page 89

1 our suits have a serial number which is  
 2 located on the right sleeve, all the liners  
 3 have serial numbers, all the HUEBAS and PLBs  
 4 have serial numbers. So any person travelling  
 5 offshore, their name gets entered and suits  
 6 get - components get assigned to them for  
 7 travel offshore and back, so obviously how to  
 8 use those systems. We essentially called it  
 9 the changing from yellow to orange because the  
 10 previous flight suit was yellow and the  
 11 current suit is orange. One of the other  
 12 steps that was put in right away was making  
 13 sure that everybody could zip up the suits  
 14 prior to flight. So they made sure -- our  
 15 staff was there to assist with any questions  
 16 anybody had about suit features and that, and  
 17 I know one of the steps that they implemented  
 18 was that everybody zip up prior to flight and  
 19 we heard that in Mr. Decker's testimony that  
 20 on the morning of his check in, one of the  
 21 things that they did -- the Cougar staff did  
 22 prior to flight was ensure that everybody  
 23 could zip up.  
 24 ROIL, Q.C.:  
 25 Q. Okay. Now the -- if I take you back to the

Page 90

1 contract, the one that we just had up, which  
 2 is Exhibit #78, and I won't take you through  
 3 all three contracts because they may be  
 4 similar in very many ways, but Clause 4.4 has  
 5 to do with sizes, and I'd like to have some  
 6 evidence from you as to what your  
 7 understanding was and how people would be  
 8 fitted into these suits?  
 9 MR. COLLINS:  
 10 A. This was not a recommendation for fitting.  
 11 This was a recommendation on the quantity of  
 12 each size we would have in stock as part of  
 13 the suit pool. So based on the historical  
 14 information that we had over the last years of  
 15 service on the Sable Project, the suit pool  
 16 would typically be made up of certain  
 17 percentages, so it would be -- of 1200 units  
 18 are 400 of those mediums that you would have  
 19 available for use. So this was not a fitting  
 20 requirement, this was in terms of how many  
 21 smalls you would have in stock, how many  
 22 mediums you would have in stock, how many  
 23 larges, how many extra larges you would have  
 24 in stock as part of the suit pool.  
 25 ROIL, Q.C.:

Page 91

1 Q. Was there any discussion at that time about  
 2 larger or smaller suit sizes?  
 3 MR. COLLINS:  
 4 A. The initial bid also had extra small suits.  
 5 Obviously, based on the information of the RFP  
 6 of the average suit size, average person being  
 7 150 to 250 pounds, that would typically cover  
 8 your smalls through to your extra large. So  
 9 it would be what would be considered the core  
 10 sizes, and a small percentage of the people  
 11 would be the larger, 2 and 3XL.  
 12 ROIL, Q.C.:  
 13 Q. But was that an issue where you -- was there  
 14 any indication to you from the outset that  
 15 larger or smaller sizes might be required?  
 16 MR. COLLINS:  
 17 A. Extra small, yes, and then quickly there was  
 18 the addition of 2 and 3XL suit sizes, which  
 19 make up 1.6 percent of the suit population and  
 20 they never seemed to be all out in use. So  
 21 for a very small number of people that they  
 22 would have required a suit larger than extra  
 23 large.  
 24 ROIL, Q.C.:  
 25 Q. Okay, so the size range grew quickly to from

Page 92

1 extra small --  
 2 MR. COLLINS:  
 3 A. From extra small to extra large, to extra  
 4 small to 3XL.  
 5 ROIL, Q.C.:  
 6 Q. So 2XL was added and 3XL?  
 7 MR. COLLINS:  
 8 A. Correct.  
 9 ROIL, Q.C.:  
 10 Q. How large a person would a 3XL accommodate?  
 11 MR. COLLINS:  
 12 A. Significantly bigger than I am, and I'm not a  
 13 small person.  
 14 ROIL, Q.C.:  
 15 Q. What size would you take?  
 16 MR. COLLINS:  
 17 A. I wear an extra large.  
 18 ROIL, Q.C.:  
 19 Q. You wear an extra large in that suit, okay.  
 20 You also mentioned the feature poster. What  
 21 was the purpose of the poster?  
 22 MR. COLLINS:  
 23 A. All the poster -- the poster was similar --  
 24 ROIL, Q.C.:  
 25 Q. I think we have an exhibit of it perhaps.

Page 93

1 MR. COLLINS:  
 2 A. Yeah, it would be similar to this one. That  
 3 may have been updated, and I'm just trying to  
 4 find the -- where did it go, #16 on my list.  
 5 ROIL, Q.C.:  
 6 Q. Should be Exhibit #81.  
 7 MR. COLLINS:  
 8 A. It would have been a little different than  
 9 this, but it would have outlined key features  
 10 of the suit, such as wrist cuffs, gloves,  
 11 boots, and I can always do -- just a kind of  
 12 top down suit review might be the best time to  
 13 do it right now.  
 14 ROIL, Q.C.:  
 15 Q. Okay. Just take your time and give the camera  
 16 a moment to move with you if it needs to.  
 17 MR. COLLINS:  
 18 A. Absolutely. I think the camera is pointed at  
 19 me now. So starting with the top of the suit  
 20 down, on top of the hood, we have an air  
 21 escape valve, so that allows the suit to self  
 22 vent when you are submerged under water, so to  
 23 allow any trapped air to escape from the suit.  
 24 ROIL, Q.C.:  
 25 Q. Okay, we heard other references -- I think

Page 94

1 people talked about burping a suit. Is that  
 2 an automatic burp, if you will?  
 3 MR. COLLINS:  
 4 A. Essentially yes. Typically in a marine  
 5 abandonment suit, as we heard in earlier  
 6 testimony from Mr. Decker, that in training  
 7 they were taught to burp the suit or get any  
 8 trapped air out of the suit. Obviously, while  
 9 seated in a helicopter, it's not always  
 10 possible, so you may have trapped air in the  
 11 suit. You must have a way of getting trapped  
 12 air out of the suit as part of your escape  
 13 buoyancy testing. That's why the valve would  
 14 be put in that area.  
 15 ROIL, Q.C.:  
 16 Q. Okay.  
 17 MR. COLLINS:  
 18 A. Obviously, the water proof zipper, you have an  
 19 additional face flap come around the face.  
 20 Behind your neck, you have your spray shield  
 21 with your deployment tabs on either side. You  
 22 have your oral inflation tube. So to operate  
 23 the oral inflation tube, you press down with  
 24 your teeth and blow in, release the lock, or  
 25 if you want to deflate the inflatable, press

Page 95

1 down on the end of the tube. Below that is  
 2 your personal locator beacon. This beacon --  
 3 this one is currently not set in the armed  
 4 position, but it's one of the steps that is  
 5 checked prior to flight, with the tab in the  
 6 downward position and the O-ring locked in  
 7 above is in automatic, so it is salt water  
 8 activation mode. So if it is submerged in  
 9 water, it'll automatically start signalling,  
 10 or you can press and hold the button for five  
 11 seconds and it will also start signalling.  
 12 Beside that, you have your water activated --  
 13 ROIL, Q.C.:  
 14 Q. Can the individual tell whether it's  
 15 signalling?  
 16 MR. COLLINS:  
 17 A. In here there's a green flashing light at the  
 18 top.  
 19 ROIL, Q.C.:  
 20 Q. So it signals a radio wave, but it also shows  
 21 the user that it's working?  
 22 MR. COLLINS:  
 23 A. That it's working, yes.  
 24 ROIL, Q.C.:  
 25 Q. Okay.

Page 96

1 MR. COLLINS:  
 2 A. The emergency salt water activated strobe  
 3 light with the armed switch in the up position  
 4 shows that it's armed and ready to go for  
 5 water activation. You have your two sensors  
 6 on the front and that is a strobing light.  
 7 Below that, you have your whistle and your  
 8 nose plug. On your below right torso, you  
 9 have your inflation pull tab, so that's for  
 10 CO2 inflation of the inflatable life jacket.  
 11 You have your cuffs with your adjustable wrist  
 12 straps, you have your gloves that are stored  
 13 in the pockets, on the overcuff of the wrist  
 14 area. On this side, you have your HUEBA unit  
 15 with your second stage regulator. You have  
 16 your buddy line, you have your polyurethane  
 17 expanded foam boots which provide thermal  
 18 protection to minus 40, and the foam liner of  
 19 the suit is a P foam liner that will provide  
 20 thermal protection as well as buoyancy of the  
 21 suit system. So the poster would have covered  
 22 many of those features.  
 23 ROIL, Q.C.:  
 24 Q. Okay, and I think perhaps if you can turn it  
 25 around so that those who are not able to see

Page 97

1 it earlier can see the inflation --

2 MR. COLLINS:

3 A. The automatic -- not the automatic, sorry, the

4 inflatable life jacket that is in the suit

5 that can either be inflated by pulling the

6 pull tab or by the oral inflation tube,

7 actually starts down here, comes down and

8 around, inflates your head pillow, comes down

9 this side and in the front, so it helps (a)

10 with stability, and also to keep your head out

11 of the water.

12 ROIL, Q.C.:

13 Q. Okay, and this Exhibit #81, I think you've

14 indicated it may not be the original one that

15 was issued. I see on this it has sizes from

16 extra small to 3 extra large.

17 MR. COLLINS:

18 A. This would have been the latest revision of

19 this poster.

20 ROIL, Q.C.:

21 Q. Right. I haven't taken you through the other

22 contracts, but were there any significant

23 differences between the three contracts with

24 the three different operating companies in

25 terms of your requirements?

Page 98

1 MR. COLLINS:

2 A. No. In terms of the scope of work, no. I

3 mean, there may have been some differences in

4 terms of how you do billings or those types of

5 items, but more on the administrative side

6 which would have been company specific, but in

7 terms of the scope of work or the

8 deliverables, no.

9 ROIL, Q.C.:

10 Q. Okay, one question that cries out to me is the

11 whole issue of how do you know -- if I'm a

12 Husky employee, do I get a Husky suit, or are

13 the suits pooled as between companies as well?

14 MR. COLLINS:

15 A. It's a shared pool amongst the three

16 operators.

17 ROIL, Q.C.:

18 Q. Okay. So the suit I travel with this week may

19 not be the suit I would travel with in three

20 weeks time?

21 MR. COLLINS:

22 A. Correct, and the suit that you travel this

23 week as, for example, employee of operator

24 "A", on the next trip may be used by an

25 employee of operator "B".

Page 99

1 ROIL, Q.C.:

2 Q. Yes. Now your requirement was not just to

3 supply, but also to service?

4 MR. COLLINS:

5 A. Correct.

6 ROIL, Q.C.:

7 Q. These pieces of equipment. What were the

8 requirements and what was the regime that was

9 created to maintain and ensure that the suits

10 can continue to be with the integrity that was

11 designed into them?

12 MR. COLLINS:

13 A. Well, in terms of the operator contracts, they

14 required that (a) we maintained our AMO, and

15 that to maintain an AMO, all your maintenance

16 procedures have to be approved by Transport

17 Canada.

18 ROIL, Q.C.:

19 Q. In other words, maintain the designation of an

20 approved maintenance organization?

21 MR. COLLINS:

22 A. Correct.

23 ROIL, Q.C.:

24 Q. Yes.

25 MR. COLLINS:

Page 100

1 A. So a high level overview, and we do have some

2 exhibits as well of some of the documents that

3 we use, which is Exhibit 89 -- some of the

4 different documentation, internal

5 documentation that we use in our maintenance

6 procedures. So just to go back to the

7 overview, there's two cycles. So a suit cycle

8 for use, an out and back trip is a cycle. So

9 whether that person is offshore three days,

10 three hours, or three weeks, it's considered

11 one cycle. So it's been worn out once by a

12 person, and worn back by the same person.

13 ROIL, Q.C.:

14 Q. Okay, the person who takes it out keeps it

15 while they're out there?

16 MR. COLLINS:

17 A. Correct.

18 ROIL, Q.C.:

19 Q. But they don't keep the breathing device?

20 MR. COLLINS:

21 A. They don't keep the breathing device, and they

22 do not keep the PLB.

23 ROIL, Q.C.:

24 Q. Okay.

25 MR. COLLINS:

Page 101

1 A. So once that suit comes back to us, the suit  
 2 comes into our shop, the liner is removed, the  
 3 components are washed. After the components  
 4 are washed, then the suit will go through a  
 5 visual inspection checklist.  
 6 ROIL, Q.C.:  
 7 Q. Is that Exhibit 89 that you had --  
 8 MR. COLLINS:  
 9 A. That is - it's one part of the Exhibit 89, and  
 10 it's actually form HH030, which I'll bring up  
 11 on screen here momentarily. So here's the  
 12 form the tracking would be done on.  
 13 ROIL, Q.C.:  
 14 Q. Who would do this tracking?  
 15 MR. COLLINS:  
 16 A. This would be our suit technicians. So this is  
 17 internal tracking documents that Transport  
 18 Canada and come in and audit to see that we're  
 19 doing our maintenance procedures. So to go  
 20 through the steps, the technician has to sign  
 21 off that he's completed all these steps after  
 22 every use. So it's -- you know, ensure the  
 23 exhaust valve is in the open position, check  
 24 the neoprene face shield and flap, the front  
 25 zipper wax, and there's a product that we use

Page 102

1 on the zipper that's called "Zipper Ease",  
 2 which is specific for these types of products  
 3 to make the zippers easier to slide up and  
 4 down, ensure that the whistle, nose clip, and  
 5 PLB attachments are installed, ensure that the  
 6 felt liners of the boots are there, check the  
 7 lining fabric condition, the internal zippers  
 8 of the liner, make sure the suit still has its  
 9 bar code, ensure that the CO2 inflation  
 10 mechanism that the CO2 cylinder is not  
 11 punctured, check the torque on the bolt that  
 12 holds the CO2 cylinder in place, ensure that  
 13 the oral inflation tube is in place with all  
 14 its components, ensure that the buddy line is  
 15 in place and packed properly, ensure that the  
 16 safety light is on with the switch in the  
 17 upwards position, make sure that the suit  
 18 still has all its reflective stickers, so  
 19 these are the reflective stickers on the suit  
 20 so that especially in night operations if a  
 21 light gets shined over the suit, it will flash  
 22 up so it will become more visible, ensure that  
 23 the cuffs and cuffs elastics are in good  
 24 condition and within specification, ensure  
 25 that the neoprene gloves are attached and

Page 103

1 within specification. Then you check the  
 2 exterior and interior fabric of the lining,  
 3 you ensure that spray shield and neck tabs are  
 4 installed, and then you would sign off on the  
 5 suit and the suit would then become ready to  
 6 go back into service.  
 7 ROIL, Q.C.:  
 8 Q. And typically in, for example, the first year  
 9 of service, would there be maintenance items  
 10 that would be detected, you know, issues that  
 11 needed to require some restitching, resewing,  
 12 resealing?  
 13 MR. COLLINS:  
 14 A. Yes, I mean, it's -- we've seen suits come  
 15 back torn, cut, so there are repairs that  
 16 would be done, and the repairs would be  
 17 tracked. So if the visual inspection  
 18 checklist was done and there was found faults,  
 19 well, then a work order would be created to  
 20 track any repairs to the suit, and that is the  
 21 last piece of this exhibit which is this form  
 22 here. It's the HH009 maintenance work order  
 23 sheet. So this tracks all the materials used,  
 24 the actual repairs done, and this work order  
 25 sheet is used any time the suit is taken out

Page 104

1 of service to be re-certified as well. I'll  
 2 actually go to the next slide to move on from  
 3 the --  
 4 ROIL, Q.C.:  
 5 Q. Before you go on, you mentioned bar code.  
 6 MR. COLLINS:  
 7 A. Yes.  
 8 ROIL, Q.C.:  
 9 Q. And I mentioned the other day in examining  
 10 another witness something about a serial  
 11 number. Is the bar code -- does that tell you  
 12 which suit you made and when?  
 13 MR. COLLINS:  
 14 A. Yes, each suit is identified. The shell and  
 15 liner separately have what we call a bar code  
 16 or a serial number for suit tracking for both  
 17 maintenance as well as where the suits are. So  
 18 if we want to -- you know, we issue a suit  
 19 offshore and that its maintenance cycle has  
 20 expired, and getting into the next slide --  
 21 ROIL, Q.C.:  
 22 Q. Okay, well, perhaps you can -- that's all we  
 23 need to know about now, but if it does have  
 24 relevance in the next slide, then you can take  
 25 it from there.

Page 105

1 MR. COLLINS:  
 2 A. So each suit is tracked. So in our systems,  
 3 after every eight cycles or eight return  
 4 trips, or six months. So if a suit size,  
 5 especially one of the fringe sizes being extra  
 6 small or 2 and 2XL, a particular suit may not  
 7 see any use and may be sitting on the shelf or  
 8 hanger in our shop for a period of six months.  
 9 Even if it has not been used, we have to pull  
 10 it off the shelf, take it out of service, and  
 11 recertify it, even though at no point in time  
 12 it left our shop. So that way you're always  
 13 making sure that your product is certified.  
 14 So what the bar codes allow is to do is not  
 15 only track where suits are, but if we start  
 16 looking for a particular suit, that allows us  
 17 to identify the specific suit, and is used in  
 18 our maintenance tracking as well.  
 19 ROIL, Q.C.:  
 20 Q. And do you track which employee has which suit  
 21 every day?  
 22 MR. COLLINS:  
 23 A. Yes, so the employee at Cougar, their  
 24 employer/employee number would be entered into  
 25 the system, and beside that, suit would get

Page 106

1 scanned, the PLB would be scanned and the  
 2 HUEBA would be scanned, so you can tell who  
 3 was assigned to what suit.  
 4 ROIL, Q.C.:  
 5 Q. Okay, so what is the additional requirement  
 6 for servicing after every eight cycle or six  
 7 months?  
 8 MR. COLLINS:  
 9 A. Okay, so it starts off the same. In terms of  
 10 removal of suit from service, thermal liner is  
 11 then removed for cleaning and inspection. You  
 12 do the same visual inspection, and then you  
 13 start doing additional testing of the suit. So  
 14 the first one is what we call a "stole" test  
 15 and that is a test on the inflation bladder  
 16 element, and that it maintains its pressure.  
 17 So you checked it, there's no leak in that  
 18 system. So that gets done every eighth cycle.  
 19 Then we actually do a leak test of the suits.  
 20 So the suits will get put on an air inflation  
 21 table, the suits will be inflated, and the  
 22 suits will be sprayed with a solution that  
 23 then would indicate if there's any leaks in  
 24 the suit, down to pinhole leaks that may be  
 25 undetectable otherwise. So after that is

Page 107

1 done, we reinstall the thermal liner, and then  
 2 it goes to one of our senior technicians  
 3 otherwise known as a final inspector. So for a  
 4 suit to come out of service to back in  
 5 service, potentially five different  
 6 technicians could have their hands on the suit  
 7 to overview the suit, and the final  
 8 inspectors, there's requirements to become  
 9 certified as a final inspection in our  
 10 maintenance procedures as approved by  
 11 Transport Canada, that they would have the  
 12 final sign off on the suit, and I'll take us  
 13 to Exhibit -- there's a separate checklist for  
 14 the final inspector, so a suit going out after  
 15 every eight cycle have had that initial  
 16 inspection checklist done, it would have a  
 17 work order issued with additional testing, and  
 18 then it would go to a final inspector for  
 19 additional checks and rechecks of components,  
 20 and then it would be deemed airworthy and put  
 21 back into service.  
 22 ROIL, Q.C.:  
 23 Q. You mentioned leak testing, and this will come  
 24 up a little later again, but the whole issue  
 25 of a suit like that, and the standard, is the

Page 108

1 suit intended to be waterproof?  
 2 MR. COLLINS:  
 3 A. The standard test method allows for some water  
 4 ingress in the standard, and that's covered  
 5 under the thermal performance and thermal  
 6 mannequin testing, in that there is a test  
 7 specific to measure water leakage into the  
 8 suit, and with any water leakage that is  
 9 deemed, and there's actually a formula, so it  
 10 is a jump from a -- I can double check the  
 11 standard, but approximately a four meter  
 12 platform into the water, then it's an hour  
 13 long swim, and you measure the two leakage  
 14 components separately, and the formula that  
 15 you use is the actual jump test leakage plus  
 16 three times the one hour swim leakage to  
 17 determine the amount of water that is put into  
 18 the suit for thermal testing.  
 19 ROIL, Q.C.:  
 20 Q. Why is it not completely waterproof?  
 21 MR. COLLINS:  
 22 A. Typically, as with any suit, and you would  
 23 even see this with custom made diving dry  
 24 suits, that seals against human skin, there's  
 25 going to be some leakage, and one other thing

Page 109	Page 111
<p>1 I'd point out, and go back to a CAPP exhibit</p> <p>2 from yesterday, and I'm not sure of the</p> <p>3 exhibit number, but this was the report for</p> <p>4 the additional testing that they did --</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. We'll actually get to that later on the CORD</p> <p>7 testing.</p> <p>8 MR. COLLINS:</p> <p>9 A. Okay.</p> <p>10 ROIL, Q.C.:</p> <p>11 Q. Okay, we'll talk about that later. So by</p> <p>12 design, some water is expected to infiltrate</p> <p>13 the suit. Through the seams or through the --</p> <p>14 MR. COLLINS:</p> <p>15 A. It would typically be through seals.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. Through the seals, and the seals are where?</p> <p>18 MR. COLLINS:</p> <p>19 A. It would be the face seal and the wrist seals.</p> <p>20 ROIL, Q.C.:</p> <p>21 Q. Okay. Now you're now two years into the</p> <p>22 contract. I think you said you started in</p> <p>23 November of '07?</p> <p>24 MR. COLLINS:</p> <p>25 A. Correct.</p>	<p>1 correction, issue that arose was that on the 2</p> <p>2 and 3XL suits when they were first done, they</p> <p>3 were done with -- because at the time there</p> <p>4 wasn't a boot available that far up the size</p> <p>5 range, there were some suits done with the</p> <p>6 sock foot. So it was flagged that we did not</p> <p>7 want the sock foot on any of the suits.</p> <p>8 ROIL, Q.C.:</p> <p>9 Q. And a sock foot is like is used on the typical</p> <p>10 immersion suit, is it?</p> <p>11 MR. COLLINS:</p> <p>12 A. Correct.</p> <p>13 ROIL, Q.C.:</p> <p>14 Q. Yes.</p> <p>15 MR. COLLINS:</p> <p>16 A. So it doesn't offer additional foot/toe</p> <p>17 protection while walking, so the action was</p> <p>18 the suits were immediately pulled from service</p> <p>19 and we worked on sourcing a boot that would</p> <p>20 work on those suits, and those suits are now</p> <p>21 stocked with a size 14 boot. The next,</p> <p>22 February 26th, 2008, the Nova Scotia</p> <p>23 intervention crew raised comfort issues with</p> <p>24 the suit.</p> <p>25 ROIL, Q.C.:</p>
Page 110	Page 112
<p>1 ROIL, Q.C.:</p> <p>2 Q. And we are now in November of '09. What has</p> <p>3 been the experience of Helly Hansen with</p> <p>4 respect to the performance of this suit prior</p> <p>5 to the incident? Let's take you up to prior</p> <p>6 to the incident on March 12th.</p> <p>7 MR. COLLINS:</p> <p>8 A. Okay. Well, I guess, the next few slides we</p> <p>9 labelled "Issues arising". This would have</p> <p>10 been comments/feedbacks that we would have</p> <p>11 received from operators, training facilities,</p> <p>12 et cetera. So you just want to go through --</p> <p>13 ROIL, Q.C.:</p> <p>14 Q. Yeah, take these issues and tell us how you</p> <p>15 became aware of them.</p> <p>16 MR. COLLINS:</p> <p>17 A. Okay.</p> <p>18 ROIL, Q.C.:</p> <p>19 Q. You started in November of 2007, and I see in</p> <p>20 December you have an issue arising. So just</p> <p>21 take each one, speak to it briefly, how you</p> <p>22 became aware of it and what, if anything, you</p> <p>23 were able to do about it?</p> <p>24 MR. COLLINS:</p> <p>25 A. Okay. The December 31 incident -- sorry,</p>	<p>1 Q. What is the Nova Scotia intervention crew,</p> <p>2 because that's a new expression to us?</p> <p>3 MR. COLLINS:</p> <p>4 A. Yeah, in Nova Scotia with the operation, they</p> <p>5 have their -- I'll say their base or their hub</p> <p>6 of which where personnel will stay overnight</p> <p>7 on board, and they also have remote locations</p> <p>8 which people do not stay on board, but</p> <p>9 obviously they still need maintenance. So the</p> <p>10 intervention crew provides the maintenance to</p> <p>11 those facilities. So they potentially could</p> <p>12 fly three/four times a day. They are a high</p> <p>13 user group. So unlike the typical user that</p> <p>14 would put the suit on, wear it for an hour and</p> <p>15 a half, fly offshore, keep it in their bunk</p> <p>16 for three weeks and then wear it once on the</p> <p>17 way in, on Monday, Tuesday, Wednesday,</p> <p>18 Thursday, Friday, they would leave either land</p> <p>19 or one of the platforms of which there's</p> <p>20 accommodations, fly to a remote unit, do</p> <p>21 maintenance, get picked up, fly to a remote</p> <p>22 unit, do maintenance, get picked up, fly back.</p> <p>23 So, you know, where the average person will do</p> <p>24 an out/in bound flight every three weeks, they</p> <p>25 could be doing four flights a day.</p>

Page 113	Page 115
<p>1 ROIL, Q.C.:</p> <p>2 Q. How long is a flight from St. John's to the</p> <p>3 facilities offshore Newfoundland?</p> <p>4 MR. COLLINS:</p> <p>5 A. Approximately an hour and a half.</p> <p>6 ROIL, Q.C.:</p> <p>7 Q. In Nova Scotia, is it a similar period of</p> <p>8 time?</p> <p>9 MR. COLLINS:</p> <p>10 A. Yes.</p> <p>11 ROIL, Q.C.:</p> <p>12 Q. Okay. So what were the issues that were</p> <p>13 raised by the Nova Scotia intervention crew?</p> <p>14 MR. COLLINS:</p> <p>15 A. It would have been comfort issues to do with</p> <p>16 weight and bulkiness of the suit, tightness of</p> <p>17 wrist cuffs, stiffness of the zipper. So the</p> <p>18 actions of that is some members found their</p> <p>19 favourite, as we labelled it, so rather than</p> <p>20 the suit staying in the regular pool, the</p> <p>21 serial number suit "XYZ" would not have not</p> <p>22 only our green tag for certified for flight</p> <p>23 use, but below that would have a tag with a</p> <p>24 name on it and it was just set aside, and that</p> <p>25 was the only person using that suit. So there</p>	<p>1 did that is our shop manager here in</p> <p>2 Newfoundland, and his previous experience,</p> <p>3 he's an engineer and he spent many years</p> <p>4 involved in suit design, suit development, and</p> <p>5 suit testing, so he has done a large number of</p> <p>6 leakage tests over his career. So, I mean, he</p> <p>7 was a perfect person to have here to go over</p> <p>8 and see the training. What he found was that</p> <p>9 during the swim and life raft portion of the</p> <p>10 training, people weren't getting wet, and that</p> <p>11 after doing multiple dunker runs, there was</p> <p>12 some leakage in the suit, but the leakage was</p> <p>13 below the levels that were introduced in the</p> <p>14 suit in terms of thermal performance. So after</p> <p>15 that investigation, that was -- we reported</p> <p>16 that back to the operators and that was the</p> <p>17 end of that action. On May 28th, 2008, there</p> <p>18 was a service bulletin issued regarding the</p> <p>19 exhaust valve on the suit, to leave the valve</p> <p>20 in the full vent position or counterclockwise</p> <p>21 position. This was an education piece for the</p> <p>22 workforce. There was some information there</p> <p>23 that it was viewed as an open/closed valve, so</p> <p>24 if the valve was open, it would allow water</p> <p>25 in. The valve is actually always closed, and</p>
<p>Page 114</p> <p>1 would have been no changes done to the suit,</p> <p>2 they just found a particular suit that they</p> <p>3 felt was more comfortable. There were also</p> <p>4 some users that did get customed suits</p> <p>5 produced.</p> <p>6 ROIL, Q.C.:</p> <p>7 Q. Did get customed suits produced?</p> <p>8 MR. COLLINS:</p> <p>9 A. Yes.</p> <p>10 ROIL, Q.C.:</p> <p>11 Q. And what was the reason they needed a customed</p> <p>12 suit?</p> <p>13 MR. COLLINS:</p> <p>14 A. Some of them were boot changes. The majority</p> <p>15 were just boot changes, so we were changing</p> <p>16 the size of the boot.</p> <p>17 ROIL, Q.C.:</p> <p>18 Q. Okay, the next one?</p> <p>19 MR. COLLINS:</p> <p>20 A. May, 2008, we received feedback from Petro</p> <p>21 Canada with respect to an employee comment</p> <p>22 regarding suit leakage in training, so we did</p> <p>23 an evaluation. So we spent time at MI looking</p> <p>24 at the training and when the leakage was</p> <p>25 coming in. Appreciate the person that went and</p>	<p>Page 116</p> <p>1 it's a matter of spring tension, how much</p> <p>2 force is required to open the valve to allow</p> <p>3 it to vent. So obviously with the valve</p> <p>4 tested in the full open position, if you close</p> <p>5 that valve off, the air pressure inside the</p> <p>6 suit would be higher -- have to be higher for</p> <p>7 it to self vent, which is not a good thing if</p> <p>8 you're submerged inside a helicopter. So it</p> <p>9 was just a service bulletin for everybody,</p> <p>10 leave the valve alone, it is preset in the</p> <p>11 full open position, this is why. So it was an</p> <p>12 education piece. In June -- June 3rd, 2008,</p> <p>13 we completed a four week survey on both in</p> <p>14 bound and out bound passengers travelling to</p> <p>15 Newfoundland offshore with questions on the E-</p> <p>16 452.</p> <p>17 ROIL, Q.C.:</p> <p>18 Q. Okay, why did you do that? Were you asked to</p> <p>19 do that, or was it something that you</p> <p>20 initiated?</p> <p>21 MR. COLLINS:</p> <p>22 A. This was a discussion with both Nova Scotia</p> <p>23 and Newfoundland operators. We were getting</p> <p>24 comfort comments regarding -- from the Nova</p> <p>25 Scotia operation more than, significantly more</p>



Page 117

1 than we were from the Newfoundland operation,  
 2 but the Newfoundland operation is the larger  
 3 workforce that is offshore, so we felt that it  
 4 was important to do a survey regarding the  
 5 comfort issues of the suit and we have that  
 6 survey as an exhibit.  
 7 ROIL, Q.C.:  
 8 Q. Okay, I think that's Exhibit #90. Bring that  
 9 one up, please.  
 10 MR. COLLINS:  
 11 A. There we go.  
 12 ROIL, Q.C.:  
 13 Q. So this isn't the survey, this is the results?  
 14 MR. COLLINS:  
 15 A. This is the results from the survey, but the  
 16 questions were the same that were asked. So  
 17 this was a survey of 225 passengers travelling  
 18 to and from the Newfoundland offshore covering  
 19 all three operators. So face seal zipper,  
 20 first question, "I am able to pull zipper suit  
 21 all the way to the top", there was a  
 22 percentage that disagreed. So the action of  
 23 that was to continue the process that was  
 24 ongoing in confirming that passengers could  
 25 full don the suit at the heliport prior to

Page 118

1 departure.  
 2 ROIL, Q.C.:  
 3 Q. And by saying it could full don, do you mean  
 4 the process --  
 5 MR. COLLINS:  
 6 A. That they could --  
 7 ROIL, Q.C.:  
 8 Q. They had to zip it all the way up?  
 9 MR. COLLINS:  
 10 A. And, yeah, as explained in earlier testimony,  
 11 that was the common practise at Cougar that it  
 12 continued, so passengers were required to show  
 13 that they could zip up. Then, "I have no  
 14 difficulty completing the face seal for take  
 15 off and landing", that was related to zipper  
 16 stiffness and that was with the continued use  
 17 of the product's zipper ease, to lubricate the  
 18 zippers to make them easier to slide up and  
 19 down.  
 20 ROIL, Q.C.:  
 21 Q. Now there's a significant, if you will, 30  
 22 percent either disagreeing or strongly  
 23 disagreeing?  
 24 MR. COLLINS:  
 25 A. Correct.

Page 119

1 ROIL, Q.C.:  
 2 Q. What could you do with the zipper in terms of  
 3 -- the face seal, what is it about the face  
 4 seal that makes it a challenge, as you  
 5 understood it at that point in time?  
 6 MR. COLLINS:  
 7 A. Well, the zipper is a dry suit zipper by  
 8 nature. They are, you know, stiff to use, and  
 9 also with the rigorous testing on the zippers,  
 10 the zipper options were very limited to use,  
 11 and at the time of the suit design, there was  
 12 one zipper approved that we could use and that  
 13 is it.  
 14 ROIL, Q.C.:  
 15 Q. So to build this suit, you have to have an  
 16 approved zipper?  
 17 MR. COLLINS:  
 18 A. Correct, one of the component testing is the  
 19 zipper has to pass a certain set of tests,  
 20 including, you know, the strength test of the  
 21 -- how strong it is so it won't easily unzip,  
 22 et cetera. So there are requirement testings  
 23 from the zipper, which in nature to make a  
 24 waterproof zipper, makes the zipper stiff to  
 25 operate.

Page 120

1 ROIL, Q.C.:  
 2 Q. And there was only one zipper that was  
 3 available to you to put into the suit?  
 4 MR. COLLINS:  
 5 A. Yes.  
 6 ROIL, Q.C.:  
 7 Q. Is that worldwide or just --  
 8 MR. COLLINS:  
 9 A. That had the Canadian approval.  
 10 ROIL, Q.C.:  
 11 Q. Oh, that had the Canadian approval, right.  
 12 Then the next question, "I've been properly  
 13 instructed to don the hood and create a face  
 14 shield". So everybody was either neutral,  
 15 agreed, or strongly agreed. "I'm easily able  
 16 to don the suit", all but 8 percent either  
 17 neutral, agreed, or strongly agreed. People  
 18 actually find the suit harder to take off,  
 19 based on the survey, in terms of after their  
 20 flight to get the suit off, it's more  
 21 difficult.  
 22 "I have been properly trained to don the  
 23 suit." All but two percent were either  
 24 neutral, agreed or strongly agreed and agreed  
 25 and strongly agreeing were significantly high

Page 121	Page 123
<p>1 categories.</p> <p>2 Next question was "the wrist seals are</p> <p>3 appropriately snug." A small percentage</p> <p>4 disagreed. "The wrist seals are overly</p> <p>5 tight," about the same percentage disagreed,</p> <p>6 and "I am confident the wrist seals will</p> <p>7 prevent leakage," and all but 2.5 percent</p> <p>8 either were neutral or agreed or strongly</p> <p>9 agreed. So this was addressing the comments</p> <p>10 that we had heard was that the wrist seals are</p> <p>11 uncomfortably tight for an hour and a half</p> <p>12 flight, but obviously being a seal, it needs</p> <p>13 to be tight to keep water out.</p> <p>14 ROIL, Q.C.:</p> <p>15 Q. Yeah.</p> <p>16 MR. COLLINS:</p> <p>17 A. And then the boots, because we had heard some</p> <p>18 comments about the size of the boots and the</p> <p>19 tread on the boots. "I find the boots</p> <p>20 comfortable," 91 percent either agreed or</p> <p>21 strongly agreed. "I have no issues walking</p> <p>22 with the boots," 89 percent either neutral,</p> <p>23 agreed or strongly agreed, and then "I am</p> <p>24 confident the boots will perform as required,"</p> <p>25 100 percent either neutral, agreed or strongly</p>	<p>1 that they could and if they couldn't, well</p> <p>2 then there was some custom suits made.</p> <p>3 ROIL, Q.C.:</p> <p>4 Q. Okay. Next one is a reporting of something in</p> <p>5 July of 2008. Back to your PowerPoint.</p> <p>6 MR. COLLINS:</p> <p>7 A. Oh, okay. So in training, we had a -</p> <p>8 ROIL, Q.C.:</p> <p>9 Q. Sorry, could you put the PowerPoint back up?</p> <p>10 MR. COLLINS:</p> <p>11 A. Oh, sorry. In July 18th, 2008, we had an</p> <p>12 inflatable bladder puncture in training. So</p> <p>13 when inflated, it broke. I mean, the outer</p> <p>14 shell broke, so of course we wanted to</p> <p>15 investigate that. So we evaluated that suit.</p> <p>16 We then evaluated our suit pool immediately,</p> <p>17 in terms of checking the bladder, making sure</p> <p>18 that, you know, it was in the proper place,</p> <p>19 and we actually installed some new inspection</p> <p>20 procedures and it is the only suit that we</p> <p>21 found--it's the only puncture that we've had</p> <p>22 was in one training suit and we had found</p> <p>23 seven suits in service that had similar, but</p> <p>24 not the same--you know, the bladder got--it</p> <p>25 appears to have gotten folded because it had</p>
<p>1 agreed.</p> <p>2 ROIL, Q.C.:</p> <p>3 Q. So what did that tell you or what did that</p> <p>4 suggest to you that needed to be done with</p> <p>5 respect to your suits?</p> <p>6 MR. COLLINS:</p> <p>7 A. Well, in terms of the boot performance, there</p> <p>8 was no change required at that time. In terms</p> <p>9 of the wrist seals, the wrist seals were snug,</p> <p>10 but snug for a reason, and there was not a</p> <p>11 change required. In terms of donning the</p> <p>12 suit, that people were able and trained to don</p> <p>13 the suit and could take off the suit and</p> <p>14 taking off the suit expressly on a skin side</p> <p>15 neoprene, so it's a smooth coated neoprene, if</p> <p>16 you're in the helicopter and sweat a little</p> <p>17 bit, they stick to you pretty good, and that</p> <p>18 it is more difficult, and that's why the</p> <p>19 action was continued in terms of the face seal</p> <p>20 and zipper, because of the percentages that</p> <p>21 indicated they either had difficulty and/or</p> <p>22 people who disagreed with the comment "I am</p> <p>23 able to pull the zipper all the way to the</p> <p>24 top," we did a continued verification that</p> <p>25 people could. So we made people demonstrate</p>	<p>1 gotten sprayed with a hose too much</p> <p>2 essentially, so we changed our inspection</p> <p>3 procedures to ensure that any suits leaving,</p> <p>4 the bladders were perfectly flat.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. Okay.</p> <p>7 MR. COLLINS:</p> <p>8 A. To ensure their preparedness, so that was a</p> <p>9 change in our maintenance procedures to catch</p> <p>10 any future incidents and we haven't found any.</p> <p>11 To go to the next one, on September 2nd,</p> <p>12 2008, one of the operators came to us in that</p> <p>13 one of the inner liner of the zipper had</p> <p>14 separated during flight, and I'll just show</p> <p>15 where that zipper is. There's a liner that</p> <p>16 goes around, from here down around on the</p> <p>17 inside of the hood and back down around and</p> <p>18 that's how the zipper--the suit is zipped</p> <p>19 into the suit system. So the liner separated</p> <p>20 in about this area.</p> <p>21 ROIL, Q.C.:</p> <p>22 Q. Okay. So it's not the major zipper on the</p> <p>23 outside? It's an internal zipper?</p> <p>24 MR. COLLINS:</p> <p>25 A. No, it was an internal zipper, but because it</p>

Page 125	Page 127
<p>1 is in the hood area, it can change the tension 2 on the inner hoodie, which can change the 3 tension of the face seal. So we've only ever 4 had one such failure, but once again, we 5 changed our inspection procedures to evaluate 6 those zippers more rigorously to make sure 7 that, you know, there was no damage to teeth 8 and to check the liners. We changed our 9 checking procedure after the liners were 10 zipped in. 11 October 28, 2008. The C-NSOPB, so that 12 is the Nova Scotia Petroleum Board, and Sable 13 operators requested a proposal for us to 14 address comfort issues experienced in Nova 15 Scotia Intervention Crew. Obviously because 16 they fly so often, they asked us to come up 17 with an alternate--come up with alternate 18 features to the suit. So on December 5th, 19 2008, we prepared our proposal and it was the 20 official start of the HTS-1 suit project, 21 which is an E-452 with some changes. 22 ROIL, Q.C.: 23 Q. Yes. Is the HTS-1 suit project in use 24 anywhere today? 25 MR. COLLINS:</p>	<p>1 yesterday that there were people flying with 2 it, but there aren't? 3 MR. COLLINS: 4 A. No. No, people have been fitted in the suit. 5 ROIL, Q.C.: 6 Q. Yes. 7 MR. COLLINS: 8 A. And had their fit checks done, but nobody has 9 flown in that suit yet. Last one, obviously 10 it comes April 6th, 2009, which is post 11 accident, but the dating is important. 12 Feedback from PetroCanada with respect to a 13 passenger having difficulty donning suit on 14 inbound flight on March 12th, 2009. So of 15 course, the first thing we did is inspect the 16 suit, and the suit was found to be free from 17 defects and returned to service. It went out 18 on other flights and there was no issues 19 reported with zipping up the suit. It was 20 also noted that the passenger did not report 21 issues donning the suit on the outbound 22 flight, nor was there a reported issue of 23 donning at the heliport prior to the outbound 24 flight. So it was noted on the inbound flight 25 only, so that person would have been flagged</p>
<p>Page 126</p> <p>1 A. No, it's not. 2 ROIL, Q.C.: 3 Q. What is it waiting for? 4 MR. COLLINS: 5 A. We are waiting for final signoff from 6 Transport Canada Aviation for approval. 7 ROIL, Q.C.: 8 Q. Okay, and when is that anticipated? 9 MR. COLLINS: 10 A. We hope by the end of the week. 11 ROIL, Q.C.: 12 Q. Okay, so it's that imminent? It's not - 13 MR. COLLINS: 14 A. It is. 15 ROIL, Q.C.: 16 Q. - months away, it's days away? 17 MR. COLLINS: 18 A. No, we are making plans for flight later this 19 week, pending the final approval and approval 20 number being issued. 21 ROIL, Q.C.: 22 Q. Okay. We'll get into that suit again a little 23 later on, but I just wanted to highlight that 24 there is no HTS-1 suit working today. I think 25 we might have been left with the impression</p>	<p>Page 128</p> <p>1 as part of the new fitting process. 2 ROIL, Q.C.: 3 Q. Okay, and an inbound flight on March the 12th 4 would have been a flight either on the same 5 day of and possibly after the 491 flight? 6 MR. COLLINS: 7 A. Yes, correct. All right, so the next piece - 8 ROIL, Q.C.: 9 Q. Before we go on to the return to flight, there 10 was another issue that came up in the evidence 11 yesterday that was involving an amendment or a 12 change with respect to the glove. Can you 13 tell us what you know about any changes to the 14 glove on the 452? 15 MR. COLLINS: 16 A. Yes. We had heard feedback from the Marine 17 Institute, being a training provider and that 18 the gloves are donned in training, that some 19 students were having difficulty donning the 20 second glove in the water. So we went and saw 21 it. I mean, both there and in Nova Scotia. 22 Did an evaluation. As a company, we took it 23 as a Helly Hansen initiated project to "is 24 this an area that we can improve the suit?" 25 The answer was yes. So we then moved forward</p>

Page 129

1 with the prototyping process to come up with  
 2 alternative gloves that would still fit within  
 3 the Transport Canada approval process, because  
 4 remembering that the current glove design on  
 5 the suit passed all the donning, both out of  
 6 water and in water requirements and mobility  
 7 requirements of the gloves of the current  
 8 standard.  
 9 ROIL, Q.C.:  
 10 Q. Yes.  
 11 MR. COLLINS:  
 12 A. So the gloves had been tested and approved  
 13 based on the size range of subjects. So there  
 14 was no, you know, regulatory industry  
 15 association move. It was just a progressive  
 16 move by Helly Hansen to continually improve  
 17 our products. So we then started the  
 18 prototyping process. We then worked with the  
 19 training centres in terms of they allowed us  
 20 to come in and have actual students try on  
 21 different gloves. We found a solution that  
 22 worked and that solution is being implemented.  
 23 ROIL, Q.C.:  
 24 Q. The various incidents that you've told us  
 25 about, the various reportings, how did these

Page 130

1 come to you? Are there formal letters? How  
 2 do these various issues come to your  
 3 attention?  
 4 MR. COLLINS:  
 5 A. Some may have been letters. The bulk were  
 6 either e-mail or verbal.  
 7 ROIL, Q.C.:  
 8 Q. And by verbal, who would be contacting you?  
 9 Employees or -  
 10 MR. COLLINS:  
 11 A. Typically it would be the operators.  
 12 ROIL, Q.C.:  
 13 Q. Okay.  
 14 MR. COLLINS:  
 15 A. So the operator would, you know, either (a)  
 16 send an e-mail to us indicating, you know,  
 17 here's the details of the problem, immediately  
 18 followed with a phone call and/or it could be  
 19 just verbal discussions with, you know, both  
 20 the operator in Nova Scotia and the Board in  
 21 Nova Scotia and then we would do a proposal  
 22 for them back, and then that would start the  
 23 process.  
 24 ROIL, Q.C.:  
 25 Q. Do you ever have interaction with the ultimate

Page 131

1 consumers or the users? Do you ever have  
 2 interactions other than the survey that you  
 3 did with the people who are wearing them every  
 4 day? Do they ever contact you?  
 5 MR. COLLINS:  
 6 A. Generally, no.  
 7 ROIL, Q.C.:  
 8 Q. Okay.  
 9 MR. COLLINS:  
 10 A. Generally that would come through their JOHS  
 11 committees and then come through the operator  
 12 to us.  
 13 ROIL, Q.C.:  
 14 Q. Okay. Would the JOHS committees have access  
 15 to you immediately or would that be, again,  
 16 through somebody else within the company?  
 17 MR. COLLINS:  
 18 A. It would be through their proper  
 19 communications channels to us. The bulk of  
 20 our access to the end users would have been  
 21 through the training facilities, seeing  
 22 students.  
 23 ROIL, Q.C.:  
 24 Q. Sorry, somebody is whispering behind me there  
 25 and they're not whispering as quietly as they

Page 132

1 should and it's breaking my train of thought  
 2 too. Okay, so things we know changed the  
 3 world for us on March the 12th of 2009. What,  
 4 if any, impact did that day have on the way in  
 5 which Helly Hansen carries on its business in  
 6 Newfoundland?  
 7 MR. COLLINS:  
 8 A. As part of the return to flight service,  
 9 immediately after the incident, there was--the  
 10 operators were contacting us because their  
 11 staff, at that point, were identifying to  
 12 them, through their JOHS committees that "I  
 13 would like to have my suit fit checked." So  
 14 then we started the development of a new  
 15 fitting process. There was no fitting process  
 16 like this that we know of in use anywhere.  
 17 ROIL, Q.C.:  
 18 Q. By anywhere you mean where?  
 19 MR. COLLINS:  
 20 A. In the world. I mean, from our indication, I  
 21 mean, typically everything had been done off  
 22 sizing charts and ensuring zippers that were  
 23 zipped up. So we then started the process  
 24 which would have started essentially April 1  
 25 is the documentation that I have, that would

Page 133

1 have been e-mails I would have received, in  
 2 terms of "we need to measure these people," so  
 3 then our team would have started that. We  
 4 started with measurements only. So we would  
 5 take -  
 6 ROIL, Q.C.:  
 7 Q. So by your team, who would you have dispatched  
 8 and where would they have been working?  
 9 MR. COLLINS:  
 10 A. Our team would have involved R & D group, so  
 11 everybody from Donald Mah to the R & D team  
 12 that's based in Dartmouth. So we would have  
 13 had people in BC working on this, people in  
 14 Nova Scotia working on this and people in  
 15 Newfoundland working on this, in terms of  
 16 developing the protocol and the process. So  
 17 at first--because, of course, at the end, the  
 18 ultimate decision was to verify if the suit  
 19 fit or not.  
 20 ROIL, Q.C.:  
 21 Q. So this was the request, was it, see if the  
 22 suits are fitting?  
 23 MR. COLLINS:  
 24 A. Correct.  
 25 ROIL, Q.C.:

Page 134

1 Q. And what were the issues about fit that you  
 2 were--that were brought to your attention or  
 3 that you were concerned about?  
 4 MR. COLLINS:  
 5 A. Some people felt they did not have good face  
 6 seals. Some felt that suits may have been too  
 7 long for them. Some felt that suits may have  
 8 been too big for them. So it was a  
 9 verification of fit and a recommendation of  
 10 what suit size the person should be wearing.  
 11 ROIL, Q.C.:  
 12 Q. Yes.  
 13 MR. COLLINS:  
 14 A. So first, we did -  
 15 ROIL, Q.C.:  
 16 Q. Prior to that time, who would have been doing  
 17 that kind of determination?  
 18 MR. COLLINS:  
 19 A. That determination would have really been off  
 20 the size chart and it would have been -  
 21 ROIL, Q.C.:  
 22 Q. No, sorry, who is deciding who to put in what  
 23 suit?  
 24 MR. COLLINS:  
 25 A. That wasn't a standard practice in the

Page 135

1 industry.  
 2 ROIL, Q.C.:  
 3 Q. No, but Helly Hansen wasn't doing it?  
 4 MR. COLLINS:  
 5 A. No, we were not.  
 6 ROIL, Q.C.:  
 7 Q. Do you know who was doing it?  
 8 MR. COLLINS:  
 9 A. No, I do not.  
 10 ROIL, Q.C.:  
 11 Q. Okay. Okay, so now you're being asked to see  
 12 if people fit their suits?  
 13 MR. COLLINS:  
 14 A. Correct.  
 15 ROIL, Q.C.:  
 16 Q. Okay, and what kind of a protocol or regime  
 17 did you develop?  
 18 MR. COLLINS:  
 19 A. So first we started off purely measurement  
 20 based. So we took approximately 30  
 21 measurements on the body and then put it  
 22 within the size ranges of the suit, quickly  
 23 determined that that wasn't enough, and the  
 24 prime example I would give would be somebody  
 25 could have the head measurement, i.e.

Page 136

1 circumference around their forehead, the same  
 2 chin to crown measurements, which is diagonal  
 3 measurement from your chin over the high point  
 4 of the crown, and the same neck measurements,  
 5 but their profile may be different, especially  
 6 in the eye socket area, which may or may not  
 7 lead to a proper face seal. So then we added  
 8 a visual component check of a physical check,  
 9 fully don the suit, and then we took it one  
 10 step further and went, okay, well, (a) check  
 11 the person can don the suit; (b) check the  
 12 person can verify that they can zip the suit  
 13 while seated; (c) was visual checks of the  
 14 seals and the fit of the suit; and (d) of  
 15 course, the last is mobility and the mobility  
 16 test is an important piece of the component  
 17 because we may fit you in a suit that has some  
 18 very good seals, but if you can't move your  
 19 arms to allow yourself egress of the  
 20 helicopter, that will obviously hinder your  
 21 performance and your ability for survival.  
 22 So over a six-week process in preparation  
 23 for return to flight, we developed the  
 24 protocol and then started fittings and as part  
 25 of the return to flight process, it was

Page 137

1 indicated to us, and this was done verbally,  
 2 but immediately acted on, by the C-NLOPB that  
 3 fit checks were going to be done on every  
 4 employee, every person travelling offshore  
 5 prior to flight.  
 6 ROIL, Q.C.:  
 7 Q. And whose employees were doing that work?  
 8 MR. COLLINS:  
 9 A. Helly Hansen was doing that work for the first  
 10 12 weeks.  
 11 ROIL, Q.C.:  
 12 Q. And then afterwards, who continued to do that  
 13 work?  
 14 MR. COLLINS:  
 15 A. We have now set up a training protocol for  
 16 Cougar staff members that handle suit  
 17 issuance. So it's a seven-day training  
 18 program where they come into our shop. They  
 19 do the first same three days as any new  
 20 technicians would do in our shop, on all our  
 21 maintenance procedures and then they did four  
 22 days of fitting training.  
 23 ROIL, Q.C.:  
 24 Q. And what have you determined as the result of  
 25 this fitting process? We heard some evidence

Page 138

1 about people being on a fly and a no-fly list.  
 2 MR. COLLINS:  
 3 A. Correct.  
 4 ROIL, Q.C.:  
 5 Q. You're familiar with those kinds of  
 6 expressions?  
 7 MR. COLLINS:  
 8 A. Yes. Well, if a passenger do not fit--pass  
 9 the fitting test, they were immediately not  
 10 cleared for flight and would have to travel  
 11 offshore by alternative means until a properly  
 12 fitting suit was available.  
 13 ROIL, Q.C.:  
 14 Q. And what, if anything, was done to make or  
 15 procure a properly fitting suit?  
 16 MR. COLLINS:  
 17 A. Through our fitting process found that some  
 18 passengers had issues with the face seal. So  
 19 we introduced four new suit sizes, often  
 20 referred to as the modified suits. So these  
 21 would have been a standard medium suit with a  
 22 smaller hood. By smaller hood, it allowed a  
 23 proper safe face seal to be formed. So that  
 24 was done as quickly as possible and currently  
 25 today, 100 and--bear with me as I look through

Page 139

1 my notes. 107 people are flying in those  
 2 modified suits.  
 3 ROIL, Q.C.:  
 4 Q. 107 are flying, okay. Do you know, as of  
 5 today, approximately how many people are not  
 6 flying?  
 7 MR. COLLINS:  
 8 A. 180.  
 9 ROIL, Q.C.:  
 10 Q. Sorry?  
 11 MR. COLLINS:  
 12 A. 180.  
 13 ROIL, Q.C.:  
 14 Q. 180, okay. Now are those 180 people, to your  
 15 knowledge, all travelling by vessel or what is  
 16 the make-up of these people?  
 17 MR. COLLINS:  
 18 A. They are either travelling by vessel or not  
 19 travelling. This list would employ regular  
 20 rotators, office staff that may travel  
 21 offshore once every few years. It may be  
 22 service contractors that may be required to  
 23 fly offshore. So the spectrum of fittings  
 24 went deep into the organizations, including,  
 25 you know, seldom travellers where it might be

Page 140

1 an office person that flies once every three  
 2 or four years.  
 3 ROIL, Q.C.:  
 4 Q. And so that 180, what is that out of? What is  
 5 the maximum number of people that have been  
 6 examined and tested and fitted by you or the  
 7 Cougar people under your direction?  
 8 MR. COLLINS:  
 9 A. It's approximately 3,000 is where we have the  
 10 number pegged in terms of fittings that have  
 11 been done. We've done both at the heliport,  
 12 outside fitting locations is our shop. In our  
 13 shop alone, we've done 830 odd fittings at our  
 14 location on Airport Road.  
 15 ROIL, Q.C.:  
 16 Q. Here in Newfoundland?  
 17 MR. COLLINS:  
 18 A. Here in Newfoundland.  
 19 ROIL, Q.C.:  
 20 Q. Yes, and the changes that you have made, for  
 21 instance, putting a smaller hood on a larger  
 22 jacket, is that something that requires that  
 23 that suit be approved by Transport Canada as  
 24 well?  
 25 MR. COLLINS:

Page 141	Page 143
<p>1 A. Yes, we had to put a compliance plan in to 2 Transport Canada for their agreement and their 3 agreement was that if we went to smaller 4 components, i.e. smaller hoods, where that was 5 a proven component, being smaller would be 6 tighter seals, that we were still compliant 7 with our approval. Any time that we wanted to 8 make changes the other way to larger 9 components, we have additional testing to do 10 and pool work to do to get those approved. 11 ROIL, Q.C.:</p> <p>12 Q. So we now have a pool of the so-called 13 standard suit, the E-452?</p> <p>14 MR. COLLINS:</p> <p>15 A. Correct.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. We have a series of amended or slightly 18 modified suits?</p> <p>19 MR. COLLINS:</p> <p>20 A. And there's four suit sizes there.</p> <p>21 ROIL, Q.C.:</p> <p>22 Q. Okay.</p> <p>23 MR. COLLINS:</p> <p>24 A. So we have now the total of 11 sizes in use. 25 ROIL, Q.C.:</p>	<p>1 been identified as custom suits. We have 2 already prototyped three new suit sizes to add 3 to the HTS-1 range, which we either have 4 already fitted or expect to fit 13 of those 25 5 people, and at the end of the day, we would 6 finish up with 12 true custom suits. 7 ROIL, Q.C.:</p> <p>8 Q. Okay, and the true custom suit, what kind of 9 an item would be there that would require them 10 to have a--for me to have a made-to-measure 11 suit, if you will?</p> <p>12 MR. COLLINS:</p> <p>13 A. It would be significant changes required to 14 leg length, arm length, whether there's a cuff 15 change that would be required to go outside 16 the standard range of cuffs. So the person's 17 size, being that everybody is typically 18 unique, would require specific changes to fit 19 them. 20 ROIL, Q.C.:</p> <p>21 Q. The HTS-1 suit project, when was that started?</p> <p>22 MR. COLLINS:</p> <p>23 A. That was started in December 2008. 24 ROIL, Q.C.:</p> <p>25 Q. And you're expecting within the 12 calendar</p>
<p>Page 142</p> <p>1 Q. With a total of 11 sizes, as opposed to the 2 initial?</p> <p>3 MR. COLLINS:</p> <p>4 A. Initial 7.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. Okay. What about custom suits?</p> <p>7 MR. COLLINS:</p> <p>8 A. In Newfoundland, prior to the accident, there 9 were seven custom suits made. 10 ROIL, Q.C.:</p> <p>11 Q. And since the incident?</p> <p>12 MR. COLLINS:</p> <p>13 A. The custom suit process, because we had the 14 HTS-1 project ongoing and that HTS-1 suit 15 project is a partnership of the three 16 Newfoundland operators, the Nova Scotia 17 operators and Helly Hansen, we looked at that 18 as a potential solution for some of the fit 19 issues. So of the 180 people that are 20 currently on the no-fly list, eight are 21 labelled to come in and have fitting in the 22 modified suits. 40 are still labelled to come 23 in for fitting in the HTS-1, and 115 have had 24 fittings done and are cleared to fly in the 25 HTS-1. So that leaves 25 people that have</p>	<p>Page 144</p> <p>1 months that it will be final and have full 2 approval?</p> <p>3 MR. COLLINS:</p> <p>4 A. Yes.</p> <p>5 ROIL, Q.C.:</p> <p>6 Q. What will happen then with respect to the E- 7 452 suit?</p> <p>8 MR. COLLINS:</p> <p>9 A. Well, the HTS-1 suit, first off, is approved 10 to only the aviation standard. 11 ROIL, Q.C.:</p> <p>12 Q. Yes, why is that?</p> <p>13 MR. COLLINS:</p> <p>14 A. As part of the HTS-1 project, we started the 15 project essentially with, you know, a white 16 sheet of paper and then went "what are the 17 constraints that we're going to put on the 18 suit?" So the first one was, okay, what 19 standards are we going to approve to? One of 20 the features of the HTS-1 suit is an internal 21 adjustable suspension system, so you can 22 adjust the suit length to allow for a better 23 fit. The downside is trying to pass cold 24 donning and two-minute donning tests that are 25 required in the marine standard are nearly</p>

Page 145	Page 147
<p>1 impossible with these additional features and 2 that the features of this suit, i.e. the 3 suspension system, in our opinion, far 4 outweigh the benefits of cold cycling for 5 storage of suit, and by cold cycling, I mean 6 freeze the suit to minus 40, heat the suit to 7 positive 65 ten times, so that you can show it 8 can be stored in a cold environment. In a 9 marine environment where suits are stored at 10 muster stations outdoors, very valid. In a 11 helicopter environment where suits are stored 12 indoors, being either at the heliport or 13 offshore, not so much.</p> <p>14 ROIL, Q.C.: 15 Q. This process of your being involved in the 16 fitting of suits and making many changes to 17 the suits and even the development, is this 18 all a part of your original contract or was 19 there any changes to your contract to deal 20 with particularly the fitting issue? 21 MR. COLLINS: 22 A. The fitting required contract amendments from 23 all three operators, and they are - 24 ROIL, Q.C.: 25 Q. Exhibit 91.</p>	<p>1 MR. COLLINS: 2 A. That would be the suspension system. 3 ROIL, Q.C.: 4 Q. The suspension system, yes. 5 MR. COLLINS: 6 A. The suspension system, to describe it on this 7 suit, suspension system attaches to the top of 8 the boots, goes up the front of the suit 9 through the suit leg, ends in the centre of 10 the suit, so it allows you to adjust the 11 overall leg length. The second strap then 12 starts at the shoulders, up over the shoulder 13 and back down the back leg of the boot. So 14 you can also adjust it and pull the whole leg 15 up shorter, in the sense of compress the 16 height of the suit. 17 ROIL, Q.C.: 18 Q. And what was the reason that that is 19 considered an asset to the suit? 20 MR. COLLINS: 21 A. Obviously allows you to, based on the width of 22 the person, adjust the height of the suit to 23 adjust to their height. 24 ROIL, Q.C.: 25 Q. Okay, and there was something about the strap</p>
Page 146	Page 148
<p>1 MR. COLLINS: 2 A. Exhibit 91, and so we had contract amendments 3 done for the commercial side of doing suit 4 fittings. Upfront I'll say that through-- 5 you'll see the dates on them are significantly 6 after when we started fittings and all the 7 operators and Helly Hansen felt that it was 8 more important to get the fittings done first 9 and we can deal with the commercial side of it 10 at a later date. 11 ROIL, Q.C.: 12 Q. Okay. So the commercial, the contract signing 13 didn't stand in the way of the work being 14 done? 15 MR. COLLINS: 16 A. No. 17 ROIL, Q.C.: 18 Q. Okay. Just ask you to, while we're talking 19 about the different suits, the photograph of 20 the HTS-1 suit, 92, and we don't have one 21 here. I think you described--I think there 22 was two--in the CAPP evidence, there was 23 indication of two amendments that Paul Barnes 24 was aware of. One was some sort of internal 25 mechanism to shorten up the -</p>	<p>1 on the back of the head? 2 MR. COLLINS: 3 A. So we went to--a couple other features 4 happened as terms of the project. The first 5 off is we worked with YKK Canada. YKK is a 6 leading zipper manufacturer in the world, and 7 worked with them over a seven-month period to 8 get a second zipper option approved. 9 ROIL, Q.C.: 10 Q. So you now have another zipper that can be 11 used? 12 MR. COLLINS: 13 A. We have another zipper that we can use in the 14 suit. 15 ROIL, Q.C.: 16 Q. Is it remarkably different in terms of length, 17 width or its application to the suit? 18 MR. COLLINS: 19 A. It looks very similar. The grab point at the 20 end of the zipper, rather than being a loop is 21 a T-handle, but also the material that it's 22 made up of is softer, so it is easier to zip 23 up and down. And we also went to an all 24 neoprene hood with an adjuster on the back of 25 the head. So once again, you can start with</p>



Page 149

1 your neoprene hood, which is entirely stretch  
 2 so it could conform to the head shape of the  
 3 person, and you also have a mechanism to  
 4 tighten that down even further on a standard  
 5 suit.  
 6 ROIL, Q.C.:  
 7 Q. So is the intention ultimately that everybody  
 8 will be changed out to an HTS-1 suit if it  
 9 gets approval?  
 10 MR. COLLINS:  
 11 A. The formality of that has not been completed  
 12 at this time.  
 13 ROIL, Q.C.:  
 14 Q. Okay. Now there was a--I believe you were  
 15 here when Mr. Decker gave his evidence about  
 16 his experiences on March the 12th. You were  
 17 in the room, were you not?  
 18 MR. COLLINS:  
 19 A. Yes, I was.  
 20 ROIL, Q.C.:  
 21 Q. He made a number of observations, and I'd ask  
 22 you to comment on them, to the extent that you  
 23 understood what he was saying and that you  
 24 feel comfortable in doing so. He made some  
 25 comparison between the immersion suit and its

Page 150

1 buoyancy and its, I guess, warmth capacity and  
 2 the aviation suit, and I took it from that  
 3 that he thought that the immersion suit was a  
 4 better suit if you're going to be in the water  
 5 a long time.  
 6 MR. COLLINS:  
 7 A. Okay.  
 8 ROIL, Q.C.:  
 9 Q. Is that what you heard?  
 10 MR. COLLINS:  
 11 A. Well, I heard that his preference would be if  
 12 he was going to be in the water for a long  
 13 time that his preference would be the  
 14 immersion suit or the neoprene universal fit  
 15 suit, and that's the experience that he's had  
 16 in training. Those suits and this suit would  
 17 be approved to the same standards and held to  
 18 the same thermal requirements. There are some  
 19 limitations of using that suit in flight.  
 20 Obviously with items like escape buoyancy,  
 21 which become critical in terms of the next  
 22 step after an incident, in terms of the next  
 23 important--the next piece is egress, then  
 24 getting to the surface and then survival and  
 25 then waiting for rescue. So depending on the

Page 151

1 suit, if it's not been tested to those, you  
 2 could hinder egress because of the design of  
 3 the suit and the fit of the suit because most  
 4 of the universal fit marine abandonment suits  
 5 and in the standards they do all the  
 6 measurements in centimetres, but are  
 7 essentially designed to fit somebody 4' 11" to  
 8 6' and change, within the same--six feet and  
 9 change in the same suit. So the same suit  
 10 that would fit somebody just about my size  
 11 would fit somebody that was 4' 11". So that,  
 12 of course, would have some--in that  
 13 application for an emergency, that suit works  
 14 very well, but our suit system is tested to  
 15 the same standard as those suits.  
 16 ROIL, Q.C.:  
 17 Q. He mentioned that he had a very low body  
 18 temperature, something like 28 degrees I  
 19 believe as a core temperature, which is really  
 20 quite low, and that he had--he felt he had  
 21 significant amounts of water that were in his  
 22 suit. What, if anything, can you say about  
 23 that? Have you had an opportunity to examine  
 24 his suit?  
 25 MR. COLLINS:

Page 152

1 A. I did his suit on one location--one occasion.  
 2 Unfortunately at that point, the suit was cut  
 3 into pieces by the paramedics. So there was  
 4 no way of determining the integrity of the  
 5 suit, and that in terms of water ingress, I do  
 6 not know how much water got into the suit. I  
 7 only have his comments, and in terms of the  
 8 relationship of his injuries and core  
 9 temperature and that, I'm sure that's part of  
 10 the TSB investigation and is being looked at.  
 11 ROIL, Q.C.:  
 12 Q. I think he also mentioned that he had  
 13 difficulty, in fact I think he said it was  
 14 impossible to don the gloves because his hands  
 15 were so cold.  
 16 MR. COLLINS:  
 17 A. Correct.  
 18 ROIL, Q.C.:  
 19 Q. Is there anyway that you, as a manufacturer,  
 20 can deal with that kind of issue?  
 21 MR. COLLINS:  
 22 A. There are some opportunities to investigate,  
 23 but the item being that you also cannot hinder  
 24 egress of the helicopter and the first thing  
 25 you have to do is be able to release that

Page 153

1 seatbelt. So if the gloves, depending on the  
 2 glove that's on the suit, if it's fully  
 3 donned, you could impede the egress portion of  
 4 it just to offer hand protection at that time.  
 5 So I mean, obviously I'm sure that's a project  
 6 that will be undertaken to look at  
 7 opportunities around that.  
 8 ROIL, Q.C.:  
 9 Q. Other than what you've told us about already,  
 10 is there anything that you can tell us, from  
 11 Helly Hansen's perspective, that is on the  
 12 horizon or that is there that might improve--  
 13 remembering the assignment of this Inquiry is  
 14 to try to improve safety in helicopter  
 15 transportation in offshore Newfoundland and  
 16 Labrador, is there anything happening in the  
 17 survival suit business that you can--oh,  
 18 sorry, before I get onto that, there was one  
 19 other exhibit. Exhibit 61, and I don't know,  
 20 that's not a part of yours. Do you have  
 21 access to that there?  
 22 MR. COLLINS:  
 23 A. It doesn't appear so at this time.  
 24 ROIL, Q.C.:  
 25 Q. If I can bring up 61, that was one of the ones

Page 154

1 from yesterday, and I don't know if we can do  
 2 that in a short period. Might be something  
 3 perhaps that we could do--might be better  
 4 actually to take a break and then bring that  
 5 one up. There might be--might take us a few  
 6 minutes to get back to that Exhibit 61.  
 7 COMMISSIONER:  
 8 Q. So are you suggesting we take the lunch break?  
 9 ROIL, Q.C.:  
 10 Q. Take our lunch break. I wouldn't be very long  
 11 in the afternoon, just you know, 10 or 15  
 12 minutes maximum.  
 13 COMMISSIONER:  
 14 Q. All right then. We'll come back at two.  
 15 ROIL, Q.C.:  
 16 Q. Thank you, Commissioner.  
 17 (LUNCH BREAK)  
 18 COMMISSIONER:  
 19 Q. Mr. Roil.  
 20 ROIL, Q.C.:  
 21 Q. Thank you, Commissioner. Welcome back, Mr.  
 22 Collins. One of the joys of giving a lawyer a  
 23 lunch break is sometimes he comes up with a  
 24 few more questions. We were, just before the  
 25 break, looking at and trying to get up on the

Page 155

1 monitors here the CORD final report, and we'll  
 2 know it through evidence given yesterday and  
 3 the day before by the CAPP group as being a  
 4 report that was commissioned by them and it  
 5 involved your suit. What can you tell us  
 6 about your knowledge of how this was  
 7 undertaken, who undertook it and what the  
 8 results were?  
 9 MR. COLLINS:  
 10 A. This was a CAPP initiative and they asked us  
 11 to supply the product, supply a technician to  
 12 do liner exchanges at lunch time, and also  
 13 that we were allowed to have an observer at  
 14 the testing. They had indicated to us the  
 15 protocol that they were going to use and we  
 16 provided the product for the testing. So this  
 17 was a CAPP initiated project.  
 18 ROIL, Q.C.:  
 19 Q. Okay. Were the suits the E-345 (sic) as we  
 20 see up there today?  
 21 MR. COLLINS:  
 22 A. They were the E-452.  
 23 ROIL, Q.C.:  
 24 Q. 452, sorry.  
 25 MR. COLLINS:

Page 156

1 A. In this configuration, yes.  
 2 ROIL, Q.C.:  
 3 Q. Yes, okay, and were they manufactured  
 4 specifically for that test or were they taken  
 5 out of inventory somewhere?  
 6 MR. COLLINS:  
 7 A. They would have been taken out of inventory.  
 8 ROIL, Q.C.:  
 9 Q. Okay. Would they have been used previously or  
 10 unused?  
 11 MR. COLLINS:  
 12 A. They would have been used previously.  
 13 ROIL, Q.C.:  
 14 Q. Okay, and the CORD Group, what relationship,  
 15 if any, do you have with that organization?  
 16 MR. COLLINS:  
 17 A. They are the independent testing facility that  
 18 does testing on--against CGSB standards. So  
 19 there's no--short of we contract them to do  
 20 testing, they write the reports and give them  
 21 back to us, that is the arrangement.  
 22 ROIL, Q.C.:  
 23 Q. Okay, and what was the outcome of that  
 24 testing, as you understood it, with respect to  
 25 water ingress into the E-452?

Page 157	Page 159
<p>1 MR. COLLINS:</p> <p>2 A. After the testing, it was our understanding</p> <p>3 the suit had performed very well. We finally</p> <p>4 saw the support at the end of last week, as</p> <p>5 did everybody else, and looking at page 13,</p> <p>6 which is the summary, and we'll scroll down to</p> <p>7 it here, and touch on parts in Section 6 and</p> <p>8 7, but in terms of Section 7, the summary, the</p> <p>9 performance of the suit, in the conditions</p> <p>10 that it was tested at during this egress and</p> <p>11 leakage testing had lower leakage values than</p> <p>12 what was determined in the CGSB test method</p> <p>13 for water ingress, and so that the water</p> <p>14 ingress value that we used for thermal</p> <p>15 performance was higher than what was achieved</p> <p>16 in this, so as its indicated in here, it can</p> <p>17 be safely concluded that the thermal value</p> <p>18 would increase with less water leakage and</p> <p>19 therefore still exceed the .75 immersed Clo</p> <p>20 value. So with less water in the suit, it</p> <p>21 would have been expected in the test for the</p> <p>22 suit to deliver a higher Clo value than it did</p> <p>23 in the original testing.</p> <p>24 ROIL, Q.C.:</p> <p>25 Q. The next paragraph says "the test program has</p>	<p>1 Q. Okay.</p> <p>2 MR. COLLINS:</p> <p>3 A. Versus in the wind and rain and the waves. A</p> <p>4 couple other points out of this discussion or</p> <p>5 this paper that are of interest is, you know,</p> <p>6 the first is entry of Section 6 discussion,</p> <p>7 the data presented in the results as being</p> <p>8 produced from tests that were designed to</p> <p>9 present a complete challenge of the waterproof</p> <p>10 integrity of the suit system, and to do this</p> <p>11 by utilizing more realistic scenarios, actions</p> <p>12 and conditions. So obviously this was</p> <p>13 pioneering new ways of pushing the suits and</p> <p>14 to determine their final performance, and also</p> <p>15 an interesting point at the bottom of the</p> <p>16 Section 6 on the next page, and actually it</p> <p>17 starts on this one here. The use of the error</p> <p>18 factor and the estimation of leakage after</p> <p>19 three hours from the leakage data causes the</p> <p>20 CGSB standard leakage test method to be more</p> <p>21 rigorous than that of the ISO, which is also a</p> <p>22 jump swim test, 20 minute swim versus a 60,</p> <p>23 though it does not require an error factor, a</p> <p>24 multiplier of the leakage attained during that</p> <p>25 swim. To put the differences of the CGSB and</p>
Page 158	Page 160
<p>1 pioneered some innovative and more realistic</p> <p>2 scenario simulations." What can you say? Did</p> <p>3 you observe the simulations as they took</p> <p>4 place?</p> <p>5 MR. COLLINS:</p> <p>6 A. I did not personally but Larry Spears from our</p> <p>7 staff was there and the simulations were an</p> <p>8 egress in the wind and waves with rain, a</p> <p>9 swim, a life raft boarding and then an</p> <p>10 additional period of time spent in the water,</p> <p>11 which would simulate real world conditions, in</p> <p>12 terms of the final performance of the suit.</p> <p>13 ROIL, Q.C.:</p> <p>14 Q. Okay. Do the tests done through the CSGB</p> <p>15 process, do they simulate so-called real world</p> <p>16 situations with wind, rain, waves, those kinds</p> <p>17 of things?</p> <p>18 MR. COLLINS:</p> <p>19 A. The leakage test, no. I mean, leakage test</p> <p>20 currently in the test method, which is also</p> <p>21 described in the report in Section 6, and I'll</p> <p>22 scroll up. Yeah, so it's a jump of a height</p> <p>23 not less than three metres and a 60 minute</p> <p>24 swim, but that is done in a calm pool.</p> <p>25 ROIL, Q.C.:</p>	<p>1 the ISO test methods into perspective, a</p> <p>2 previous study conducted by the CORD group</p> <p>3 determined that the CGSB leakage method</p> <p>4 estimated leakage at 3.7 times higher than the</p> <p>5 ISO test method would have, which results in a</p> <p>6 suit that must be more insulated to meet CGSB</p> <p>7 standards. So clearly showing that our</p> <p>8 current test methods in this case are more</p> <p>9 rigorous in terms of thermal performance than</p> <p>10 the ISO standard currently is.</p> <p>11 ROIL, Q.C.:</p> <p>12 Q. And I notice that CORD is one of the</p> <p>13 participants in the CGSB committee?</p> <p>14 MR. COLLINS:</p> <p>15 A. Yes, they are.</p> <p>16 ROIL, Q.C.:</p> <p>17 Q. Can we assume from that that there will be</p> <p>18 some attempt made to simulate these kinds of</p> <p>19 tests for suits and standards in the future?</p> <p>20 MR. COLLINS:</p> <p>21 A. My understanding is this has been an area of</p> <p>22 discussion in the last two days in the Ottawa</p> <p>23 setting.</p> <p>24 ROIL, Q.C.:</p> <p>25 Q. Okay, another area that I had already dealt</p>

Page 161

1 with that I wanted to go back with just for a  
 2 moment is the issue of the survey, first of  
 3 all, which is your Exhibit No. 90. We don't  
 4 have the survey, and perhaps I should have  
 5 asked you to produce that, but we do have the  
 6 results, but when we get the results on the  
 7 screen, I want to ask you a couple of  
 8 questions that I didn't earlier.  
 9 The questions in--or sorry, the answers  
 10 that you have assessed involve three questions  
 11 on four different issues.  
 12 MR. COLLINS:  
 13 A. Correct.  
 14 ROIL, Q.C.:  
 15 Q. Are they the same four issues that were in the  
 16 actual survey or were more things involved?  
 17 MR. COLLINS:  
 18 A. The 12 questions that were asked were exactly  
 19 worded this way in the survey.  
 20 ROIL, Q.C.:  
 21 Q. Okay. So there were no additional questions?  
 22 MR. COLLINS:  
 23 A. There was area for comments.  
 24 ROIL, Q.C.:  
 25 Q. That was one of my first questions is did you

Page 162

1 give an opportunity for the persons being  
 2 surveyed to write comments?  
 3 MR. COLLINS:  
 4 A. Yes, we did.  
 5 ROIL, Q.C.:  
 6 Q. Okay. Did you get any comments that would in  
 7 any way assist you in the further development  
 8 of your suit or suits?  
 9 MR. COLLINS:  
 10 A. The bulk of the comments were regarding  
 11 comfort, in terms of zipper stiffness in the  
 12 neck area and boot sizing was the bulk of the  
 13 addition comments, as part of the survey.  
 14 ROIL, Q.C.:  
 15 Q. With full 20/20 hindsight now, looking back  
 16 after the March 12th incident and the focus on  
 17 fit after that, did it not occur--or did it  
 18 occur to you or clearly it didn't, I guess, to  
 19 put questions in about whether your suit fit?  
 20 Did you ask any question that could be  
 21 interpreted that way? And I guess, if not,  
 22 why not?  
 23 MR. COLLINS:  
 24 A. Based on the information we were getting from  
 25 the field, being operators and other sources,

Page 163

1 the bulk of the comments were coming around  
 2 the stiffness of the zipper, which is why we  
 3 focused straight in on the zipper stiffness.  
 4 In terms of fit, at that point in time, as I  
 5 stated earlier, we only had seven custom suits  
 6 in the market in Newfoundland. So it was not--  
 7 and only one of those involved any face seal  
 8 changes. So it was not, at that time, a  
 9 perceived high percentage.  
 10 ROIL, Q.C.:  
 11 Q. The final questions with respect to fit, and  
 12 this relates really to the whole issue of  
 13 small, medium, large, extra large, and so on,  
 14 and all of us as consumers go out and buy  
 15 clothing and sometimes I'm proud to get into  
 16 an extra large. Sometimes it takes something  
 17 a little larger for my size, and sometimes an  
 18 extra large is not big enough. What kind of  
 19 tolerance is there built in with respect to  
 20 sizing? Would a medium be a medium be a  
 21 medium or is there an area that one medium  
 22 might be very different from another medium  
 23 and the large from a large?  
 24 MR. COLLINS:  
 25 A. As with any manufactured product, there is

Page 164

1 obviously tolerances for, you know, seam  
 2 allowances and those types of things, but of  
 3 course, because of the nature of this product,  
 4 those are very small. So there may be slight  
 5 differences, and I say slight, you would  
 6 probably notice more of a difference from a  
 7 suit that has been worn more often than  
 8 necessarily two new suits, and I say worn more  
 9 often because things like the liner would  
 10 soften up, in terms of flexibility. You would  
 11 be into a zipper that had more opportunities  
 12 to be lubricated and run up and down. So  
 13 those are the types of difference that you  
 14 would generally see more than a true--say a  
 15 wide gap, and I guess the example is you  
 16 wouldn't find a medium that's this length and  
 17 find a medium that is two inches shorter.  
 18 ROIL, Q.C.:  
 19 Q. Okay, and what about wider? If that's, you  
 20 know, so many inches wide, would I find one  
 21 with an inch wider or two inches wider?  
 22 MR. COLLINS:  
 23 A. No.  
 24 ROIL, Q.C.:  
 25 Q. Okay. What sort of variations would you find?

Page 165

1 MR. COLLINS:  
 2 A. Half inch.  
 3 ROIL, Q.C.:  
 4 Q. Okay, and my last question, I guess, is the  
 5 one that I was closing on earlier and I didn't  
 6 really give you a chance to comment on it, and  
 7 that is, I guess, to say is there anything  
 8 that you can tell us that would assist us in  
 9 our assignment to make transportation of  
 10 workers in the offshore by helicopter more  
 11 safe? Are there any new technology that's  
 12 coming out? Are there any advances that  
 13 you're aware of or other changes that might  
 14 assist us in achieving that objective?  
 15 MR. COLLINS:  
 16 A. Currently no, but I think there's an effort  
 17 from the community, especially through the  
 18 standards process, to work towards test  
 19 methods that would simulate real world  
 20 conditions, you know, testing final product  
 21 performance and maybe, you know, maybe we  
 22 spend less time in terms of component testing,  
 23 i.e. one of the examples I would do is you do  
 24 a seam test and then a body test, being that  
 25 we have to test the strength of every one of

Page 166

1 these seams and then we take the suit, put a  
 2 chain through the arm, cut a hole through the  
 3 side of the leg, put two metal bars and try to  
 4 break the suit in half. Are we spending a lot  
 5 of time doing duplication there, and can we  
 6 work on efforts towards testing a final  
 7 product and putting that in through our  
 8 standards process.  
 9 So in terms of new technologies at this  
 10 time, no. Do I think the standards group  
 11 that's working together right now, in terms of  
 12 the review of the standard, they will push  
 13 the--you know, the new standard, I'm sure,  
 14 will push manufacturers to develop other  
 15 technologies.  
 16 ROIL, Q.C.:  
 17 Q. Mr. Barnes told us that it was not necessary  
 18 that there would be a change. The fact that  
 19 there was a review meant the old standard  
 20 could be confirmed or a revision could be  
 21 developed. Do you have any insight into which  
 22 of those opportunities is more likely or is it  
 23 too early to say?  
 24 MR. COLLINS:  
 25 A. I would say from very early information that

Page 167

1 it is likely that there will be some changes  
 2 to the standard. I mean, you know, the  
 3 standards process is to do a review of the  
 4 current test methods and to do validation as  
 5 well as to challenge what's already there and  
 6 see if there's areas for improvement. So it  
 7 is, in our opinion, likely that there will be  
 8 a change that comes down.  
 9 ROIL, Q.C.:  
 10 Q. What is the timeframe that you expect? And I  
 11 realize it's not your truck, you don't drive  
 12 it, but what would you expect to be the  
 13 timeframe necessary to get a new standard?  
 14 MR. COLLINS:  
 15 A. Without seeing the work from those first four  
 16 days, it would be hard to estimate.  
 17 ROIL, Q.C.:  
 18 Q. Okay. That's a fair answer. Thank you, sir.  
 19 I have no further questions for you. Others  
 20 will, I'm sure.  
 21 MR. COLLINS:  
 22 A. Okay.  
 23 COMMISSIONER:  
 24 Q. Okay, thank you, Mr. Roil. Mr. Spencer, you  
 25 could, if you wish, ask Mr. Collins questions

Page 168

1 now to clarify anything that you wanted to, or  
 2 you could wait until other people have  
 3 questioned. What's your preference?  
 4 MR. SPENCER:  
 5 Q. I think I'd prefer to wait until other counsel  
 6 have an opportunity to ask questions.  
 7 COMMISSIONER:  
 8 Q. Okay then. Now perhaps I'll do as I did  
 9 yesterday and ask for an indication of who  
 10 might wish to ask questions, rather than go  
 11 through the whole number. So Ms. O'Brien, you  
 12 do. Mr. Earle. Anyone else? No?  
 13 MR. MARTIN:  
 14 Q. I have no questions.  
 15 COMMISSIONER:  
 16 Q. So there are only two then. So Mr. Earle, on  
 17 the list your name appears first, as it were,  
 18 so are you ready?  
 19 EARLE, Q.C.:  
 20 Q. Yes.  
 21 COMMISSIONER:  
 22 Q. Okay then.  
 23 MR. MARK COLLINS, EXAMINATION BY RANDELL EARLE, Q.C.  
 24 EARLE, Q.C.:  
 25 Q. I must say, Commissioner, I'm starting to feel

Page 169

1 like what Chief Justice Mifflin used to refer  
 2 to as a hardy perennial. Perhaps, Mr.  
 3 Collins, if we could start with the Helly  
 4 Hansen set up and I must say, having been a  
 5 user of Helly Hansen products for a number of  
 6 years, I'm a bit dismayed to find out that  
 7 they aren't all made by Norwegians. But more  
 8 specifically, in terms of your company's  
 9 relationship with Helly Hansen, I notice you  
 10 describe yourselves as a licensee.  
 11 MR. COLLINS:  
 12 A. That is correct.  
 13 EARLE, Q.C.:  
 14 Q. And the products which you make, are they  
 15 designed by your company or are you licensees  
 16 of Helly Hansen designed products, which may  
 17 be modified to the Canadian market?  
 18 MR. COLLINS:  
 19 A. The bulk of our products is actually designed  
 20 in Canada for the Canadian market.  
 21 EARLE, Q.C.:  
 22 Q. And are they designed by your company?  
 23 MR. COLLINS:  
 24 A. Yes, they are.  
 25 EARLE, Q.C.:

Page 170

1 Q. So would the E-452 have been a Canadian  
 2 designed unit?  
 3 MR. COLLINS:  
 4 A. Yes, it was.  
 5 EARLE, Q.C.:  
 6 Q. Okay. What about the 352, was it a Canadian  
 7 designed unit?  
 8 MR. COLLINS:  
 9 A. The 352 would have started as a Norwegian unit  
 10 and then our groups would have been involved  
 11 in working towards getting the changes done to  
 12 meet the Canadian standard.  
 13 EARLE, Q.C.:  
 14 Q. Fine, and would it be fair to say that the 452  
 15 is another generation of the 352, in the sense  
 16 that it is based heavily on the 352 with  
 17 certain changes and improvements?  
 18 MR. COLLINS:  
 19 A. Correct. It would be that there are very  
 20 similar features than in the 352, but with  
 21 changes to meet the performance requirement of  
 22 the new standards.  
 23 EARLE, Q.C.:  
 24 Q. I'm curious about the certificate, the AP-22.  
 25 I'm sorry, I haven't been able to keep track

Page 171

1 of the exhibit numbers for these.  
 2 MR. COLLINS:  
 3 A. It's Exhibit 69.  
 4 EARLE, Q.C.:  
 5 Q. It's the Transport Canada certificate.  
 6 ROIL, Q.C.:  
 7 Q. Type certificate?  
 8 EARLE, Q.C.:  
 9 Q. Type certificate, yes.  
 10 ROIL, Q.C.:  
 11 Q. The Exhibit No. 69.  
 12 EARLE, Q.C.:  
 13 Q. Exhibit No. 69, and so this AP-22 certificate  
 14 gives the approval, I suppose is the best word  
 15 to use, for the following aeronautical  
 16 products, and -- do you need some time to find  
 17 something there?  
 18 MR. COLLINS:  
 19 A. No, I'm good.  
 20 EARLE, Q.C.:  
 21 Q. And it covers the E-352, the E-352B, E-352C,  
 22 E-352D, E-452, and all of which are helicopter  
 23 transportation suits and then the type  
 24 certificate data sheet goes on to tell us a  
 25 bit more, and I had understood from your

Page 172

1 evidence that the 452 was a more recently  
 2 developed helicopter aviation suit. Is that  
 3 correct?  
 4 MR. COLLINS:  
 5 A. That is correct.  
 6 EARLE, Q.C.:  
 7 Q. So how is it that they're all on the same  
 8 certificate?  
 9 MR. COLLINS:  
 10 A. The approval we have for aviation transport  
 11 suits would list the different models. One  
 12 thing it does not list--and let me just double  
 13 check. What it does show is that on the basis  
 14 of certification, on the next page, you'll see  
 15 that airworthiness manual chapter 537  
 16 recognizes Canadian General Standards Board  
 17 and it states the specific standard that it  
 18 was approved to. So as you can see, the E- 352  
 19 met CAN/CGSB 65.17-M88 dated January 1988. In  
 20 addition to that, we have a new version of  
 21 suit that is approved for use, which is the E-  
 22 452, which was updated to the latest standard.  
 23 So they would fall into the family of approved  
 24 products that Helly Hansen Canada has had  
 25 approved to Canadian standards, but within

Page 173

1 that, it indicates the individual standards  
2 that suits have been approved to. So there is  
3 the E-352 suits, of which we still have a  
4 supply of, but do not have a customer for at  
5 this time, could still be used in helicopter  
6 aviation if the regulations allowed for the  
7 older standard to be used.

8 EARLE, Q.C.:

9 Q. Can you just tell us generally what the  
10 difference is between the E-352 and the E-  
11 352B, C and D are?

12 MR. COLLINS:

13 A. Some key changes would have been the  
14 adaptability on a sleeve to put a PLB. So it  
15 would have been a different version. It may  
16 have been--I don't have all the technical  
17 specs because we've been using the E-352C as  
18 the primary suit previous to this contract.  
19 So it would have been subtle differences in  
20 the suit and the suit system, but all within  
21 the same family. So it would have been four  
22 variations of the same suit. Now in terms of  
23 specific details, I don't have those.

24 EARLE, Q.C.:

25 Q. So could we take from what you're saying that

Page 174

1 what we have in the 352B, C and D are  
2 modifications of the original 352 to  
3 accommodate different devices or to change the  
4 configuration of a device on the suit?

5 MR. COLLINS:

6 A. Correct.

7 EARLE, Q.C.:

8 Q. So when did you start developing the E-452?

9 MR. COLLINS:

10 A. It would have been late 2005, early 2006.

11 EARLE, Q.C.:

12 Q. Late 2005?

13 MR. COLLINS:

14 A. Yeah, in that timeframe.

15 EARLE, Q.C.:

16 Q. Early 2006, and this document here is  
17 described as--on the third page or the third  
18 page in the exhibit, page two of two has  
19 amendment number 12. You see -

20 MR. COLLINS:

21 A. Correct.

22 EARLE, Q.C.:

23 Q. So is this the first approval of the 452?

24 MR. COLLINS:

25 A. It is, correct.

Page 175

1 EARLE, Q.C.:

2 Q. This is the first approval. So when you  
3 receive the RFP, you didn't have the 452  
4 approved?

5 MR. COLLINS:

6 A. The 452 would have been in development and on  
7 its way to final approval, because as  
8 submission of the RFP, we had to submit  
9 approval data as well, the testing data, as  
10 well as the approval certificates.

11 EARLE, Q.C.:

12 Q. So I take it you must have been pretty  
13 confident that the approval was coming?

14 MR. COLLINS:

15 A. By the time we would have replied--by the time  
16 the RFP came out and--the short answer is yes.

17 EARLE, Q.C.:

18 Q. It took you--you're telling us that it took  
19 you essentially a year to get a whole new suit  
20 approved, to go from design to presumably  
21 producing the specifications and whatever?

22 MR. COLLINS:

23 A. It would have probably been a little over a  
24 year. It would have been fall of--we supplied  
25 this in '06, so it would have been fall '05 to

Page 176

1 get through all the--I'm sure there was  
2 concept work done beforehand, but in terms of  
3 the nuts and bolts of the project.

4 EARLE, Q.C.:

5 Q. Okay. Did any of the E-352 suits have the  
6 capacity for a HUEBA?

7 MR. COLLINS:

8 A. No, they did not.

9 EARLE, Q.C.:

10 Q. Was then the primary motivation behind the E-  
11 452 the need to accommodate a HUEBA?

12 MR. COLLINS:

13 A. That would have been one of the  
14 considerations. The other consideration was  
15 the more rigorous testing required regarding  
16 thermal testing.

17 EARLE, Q.C.:

18 Q. Okay. Well, let's--would it then have been  
19 your situation in the fall of 2005 that you  
20 were anticipating, at that point in time, that  
21 the helicopter aviation market in Canada would  
22 involve and require aviation suits with HUEBA  
23 capacity?

24 MR. COLLINS:

25 A. Yes, it would have.

Page 177

1 EARLE, Q.C.:

2 Q. When do you think your company would have

3 first anticipated the need for HUEBA capacity?

4 MR. COLLINS:

5 A. The timeframe would have been very similar,

6 because we were, you know, the current suit

7 provider on a contract in Nova Scotia, knowing

8 that our contract was expiring and that there

9 was going to be requirements for a new suit to

10 the new standards. So upfront, it would have

11 been the new suit, one of the requirements

12 would have been, yes, you're going to have to

13 have an integrated HUEBA.

14 EARLE, Q.C.:

15 Q. So I take it that it would have gone something

16 like this. Your contract, which probably was

17 for a five-year term?

18 MR. COLLINS:

19 A. Correct.

20 EARLE, Q.C.:

21 Q. Would have been coming up for renewal. So you

22 would have had some meetings with the

23 operators and asked them, you know, "the

24 contract is going to be coming up for renewal.

25 What sort of improvements or changes might you

Page 178

1 be looking for in the suit?"

2 MR. COLLINS:

3 A. Correct.

4 EARLE, Q.C.:

5 Q. Okay. With the E-352, when you were supplying

6 that in Nova Scotia, had you provided custom

7 suits?

8 MR. COLLINS:

9 A. Not that I recall, but the possibility is

10 there for possibly one or two, but from the

11 best knowledge of our suit inventory, there

12 was--everyone was using the standard E-352.

13 EARLE, Q.C.:

14 Q. Okay, if we could look at the RFP?

15 ROIL, Q.C.:

16 Q. Exhibit 76.

17 MR. COLLINS:

18 A. Okay.

19 EARLE, Q.C.:

20 Q. And this is November 9th, 2006, about five

21 weeks before you got your approval.

22 MR. COLLINS:

23 A. Okay.

24 EARLE, Q.C.:

25 Q. The RFP, if we could turn to the Section 3.9?

Page 179

1 MR. COLLINS:

2 A. Okay.

3 EARLE, Q.C.:

4 Q. This clearly states that the proposal must

5 include supply of emergency breathing systems,

6 helicopter underwater emergency breathing

7 apparatus, right?

8 MR. COLLINS:

9 A. That is correct.

10 EARLE, Q.C.:

11 Q. 3.9.2, it says "these units require Transport

12 Canada approval to be fitted to the suit or

13 vest." If you had simply been providing the

14 352 with a modification, how long do you think

15 it would have taken to get Transport Canada

16 approval for that?

17 MR. COLLINS:

18 A. The biggest issue with getting Transport

19 Canada approval for that is in the E-352

20 system, it uses an external life jacket. So

21 you would have had to--it doesn't have the

22 integrated life jacket which allows us to have

23 the bottle externally located. So you would

24 have had to rework the bottle around not only

25 our suit system, but have the inflatable life

Page 180

1 jacket, which is not a Helly Hansen system,

2 it's an RFD Beaufort inflatable life jacket.

3 We would have had to bring in a third party,

4 RFD Beaufort, to possibly modify their vest

5 and it could have taken--you know, it was

6 perceived to have taken longer than the course

7 of action to go with the E-452.

8 EARLE, Q.C.:

9 Q. Okay. Now the content of the RFP seems to me

10 to imply that there was knowledge that suits

11 of this type were in the works with Transport

12 Canada. Is that correct?

13 MR. COLLINS:

14 A. I'm sure the operator would have known our

15 intent to bid and would have known that we

16 were working on product, yes.

17 EARLE, Q.C.:

18 Q. Were you aware if any of your competitors were

19 developing a suit with capacity for a HUEBA?

20 MR. COLLINS:

21 A. Our understanding is we had two competitors

22 that were developing product specifically for

23 this contract.

24 EARLE, Q.C.:

25 Q. In paragraph 3.8, the personal locator beacons



Page 181	Page 183
<p>1 are detailed.</p> <p>2 MR. COLLINS:</p> <p>3 A. Correct.</p> <p>4 EARLE, Q.C.:</p> <p>5 Q. And could you tell us the difference between</p> <p>6 the 406 121.5 and the Sea Marshall 121.5?</p> <p>7 MR. COLLINS:</p> <p>8 A. We'll start with the Sea Marshall 121.5, which</p> <p>9 is the unit that you see on the suit here.</p> <p>10 The Sea Marshall unit transmits on the 121.5</p> <p>11 frequency, which would be used by search and</p> <p>12 rescue regionally, in terms of by search</p> <p>13 aircraft, by boats, by any of their search and</p> <p>14 rescue operational folks. It is a device that</p> <p>15 can be set into water activation mode, which</p> <p>16 is done prior to every flight. So that the</p> <p>17 user, if submerged in water, does not have to</p> <p>18 do anything and the unit will start</p> <p>19 signalling.</p> <p>20 EARLE, Q.C.:</p> <p>21 Q. Um-hm.</p> <p>22 MR. COLLINS:</p> <p>23 A. And so it'll signal on the 121.5 frequency.</p> <p>24 The Nova Scotia PLB, which is the rescue fix</p> <p>25 from ACR transmits on two frequencies, the</p>	<p>1 EARLE, Q.C.:</p> <p>2 Q. - by Sea Marshall.</p> <p>3 MR. COLLINS:</p> <p>4 A. I'll bring that up on the screen. No, sorry,</p> <p>5 wrong one. I'm sorry, Exhibit 82.</p> <p>6 EARLE, Q.C.:</p> <p>7 Q. And if we go to the third page of that</p> <p>8 exhibit, we're given the range for various</p> <p>9 types of receivers for this beacon?</p> <p>10 MR. COLLINS:</p> <p>11 A. That is correct.</p> <p>12 EARLE, Q.C.:</p> <p>13 Q. And so just so we got it on the record here, a</p> <p>14 ship can pick up the beacon from .75 to 1.5</p> <p>15 nautical miles from the individual?</p> <p>16 MR. COLLINS:</p> <p>17 A. That is what's indicated in the document, yes.</p> <p>18 EARLE, Q.C.:</p> <p>19 Q. A fixed wing aircraft at 10,000 feet can pick</p> <p>20 up the signal 35 or more nautical miles with</p> <p>21 increasing altitude? Is that correct?</p> <p>22 MR. COLLINS:</p> <p>23 A. That is correct.</p> <p>24 EARLE, Q.C.:</p> <p>25 Q. So if you're up at 10,000 feet where you're</p>
<p>Page 182</p> <p>1 406, which is a satellite frequency, and then</p> <p>2 a regional frequency as well, which would also</p> <p>3 be--the regional frequency would be also used</p> <p>4 by the search and rescue folks, but that is a</p> <p>5 manually activated unit, so you have to flip</p> <p>6 the antenna open, press and hold the button</p> <p>7 for one second because that removes the cover</p> <p>8 from the button, and you have to manually</p> <p>9 activate the unit.</p> <p>10 EARLE, Q.C.:</p> <p>11 Q. Um-hm. So the device that is on the</p> <p>12 Newfoundland suit -</p> <p>13 MR. COLLINS:</p> <p>14 A. Yes.</p> <p>15 EARLE, Q.C.:</p> <p>16 Q. - cannot be picked up by a satellite?</p> <p>17 MR. COLLINS:</p> <p>18 A. I don't believe so, no.</p> <p>19 EARLE, Q.C.:</p> <p>20 Q. No, and in fact, we were supplied in your</p> <p>21 documents, Mr. Roil didn't go through that</p> <p>22 with you, but the Man Overboard Alert and</p> <p>23 Locate Systems by -</p> <p>24 MR. COLLINS:</p> <p>25 A. It's Exhibit 83.</p>	<p>Page 184</p> <p>1 going to have some fun seeing somebody in the</p> <p>2 water, you can get the signal 35 miles away,</p> <p>3 35 nautical miles away, right?</p> <p>4 MR. COLLINS:</p> <p>5 A. That's what's indicated in the document, yes.</p> <p>6 EARLE, Q.C.:</p> <p>7 Q. And a helicopter, 7 to 15 nautical miles at</p> <p>8 1,000 feet?</p> <p>9 MR. COLLINS:</p> <p>10 A. That's correct. That's what's indicated.</p> <p>11 EARLE, Q.C.:</p> <p>12 Q. Whereas the 406 transmits to satellites?</p> <p>13 MR. COLLINS:</p> <p>14 A. That is correct.</p> <p>15 EARLE, Q.C.:</p> <p>16 Q. And are these position indicating beacons or</p> <p>17 are they homing beacons?</p> <p>18 MR. COLLINS:</p> <p>19 A. This one would be a homing beacon.</p> <p>20 EARLE, Q.C.:</p> <p>21 Q. A homing beacon, so it doesn't send out a</p> <p>22 signal giving a position. It has a signal</p> <p>23 that you can follow in?</p> <p>24 MR. COLLINS:</p> <p>25 A. Both units, when they're transmitting on</p>

Page 185	Page 187
<p>1 121.5, you would use the equipment for</p> <p>2 tracking to guide you into the position. So</p> <p>3 it would not give you a lat and long position.</p> <p>4 EARLE, Q.C.:</p> <p>5 Q. On the 406 channel, it does give you -</p> <p>6 MR. COLLINS:</p> <p>7 A. As long as there's a clear signal that gets</p> <p>8 received by the satellite, correct.</p> <p>9 EARLE, Q.C.:</p> <p>10 Q. Yeah, and that's the same channel that most of</p> <p>11 these--I think they call them EPIRBs?</p> <p>12 MR. COLLINS:</p> <p>13 A. I believe so, yes.</p> <p>14 EARLE, Q.C.:</p> <p>15 Q. Transmit on, so vessels and various other</p> <p>16 systems of emergency locators, right?</p> <p>17 MR. COLLINS:</p> <p>18 A. That's my understanding, but I'm also not an</p> <p>19 expert on ELT units and EPIRBs.</p> <p>20 EARLE, Q.C.:</p> <p>21 Q. Okay. Now if we look at paragraph 3.10 of the</p> <p>22 RFP?</p> <p>23 MR. COLLINS:</p> <p>24 A. Yes.</p> <p>25 EARLE, Q.C.:</p>	<p>1 EARLE, Q.C.:</p> <p>2 Q. - that it seemed like you had a general</p> <p>3 approval for that sort of modification from</p> <p>4 Transport Canada. Is that -</p> <p>5 MR. COLLINS:</p> <p>6 A. No, we would have had to submit a compliance</p> <p>7 plan as to why going to a smaller seal or</p> <p>8 smaller component would not affect the</p> <p>9 integrity or performance of the suit.</p> <p>10 EARLE, Q.C.:</p> <p>11 Q. So that would have been--would not have been a</p> <p>12 per suit type approval? That was something</p> <p>13 that was approved for a general strategy?</p> <p>14 MR. COLLINS:</p> <p>15 A. Yes, that was.</p> <p>16 EARLE, Q.C.:</p> <p>17 Q. The seven custom suits that you had done prior</p> <p>18 to the crash of the Cougar flight, how long</p> <p>19 did it take to get your approvals for these</p> <p>20 custom suits?</p> <p>21 MR. COLLINS:</p> <p>22 A. Not all the suits had approvals.</p> <p>23 EARLE, Q.C.:</p> <p>24 Q. Pardon?</p> <p>25 MR. COLLINS:</p>
Page 186	Page 188
<p>1 Q. It says "bidder shall supply detailed</p> <p>2 information on where the facilities are and</p> <p>3 where the suits will be customized." So there</p> <p>4 was a clear understanding from the request for</p> <p>5 proposals that the suits might have to be</p> <p>6 customized?</p> <p>7 MR. COLLINS:</p> <p>8 A. That is correct.</p> <p>9 EARLE, Q.C.:</p> <p>10 Q. What did you tell the operators in</p> <p>11 Newfoundland and Nova Scotia about your</p> <p>12 ability to customize suits?</p> <p>13 MR. COLLINS:</p> <p>14 A. We would have told the operators that we have</p> <p>15 the capabilities to do custom suits, but any</p> <p>16 custom suits would require additional work to</p> <p>17 have approval from Transport Canada.</p> <p>18 EARLE, Q.C.:</p> <p>19 Q. Now you mentioned in your evidence that when</p> <p>20 you got into modifications post April of this</p> <p>21 year, that as long as you were adding a</p> <p>22 smaller size to a large suit, a smaller size</p> <p>23 component like the face seal -</p> <p>24 MR. COLLINS:</p> <p>25 A. Correct.</p>	<p>1 A. Not all the suits had approvals.</p> <p>2 EARLE, Q.C.:</p> <p>3 Q. Not all the suits had approvals?</p> <p>4 MR. COLLINS:</p> <p>5 A. Had approval work completely done, so my</p> <p>6 understanding is that the operator with the</p> <p>7 suits would seek the--I don't want--it's not</p> <p>8 RFP it's an RQF, regulatory query from the</p> <p>9 Board to be allowed to use these suits.</p> <p>10 EARLE, Q.C.:</p> <p>11 Q. So the operator got essentially a dispensation</p> <p>12 from the Offshore Petroleum Board to use a</p> <p>13 suit that was not approved?</p> <p>14 MR. COLLINS:</p> <p>15 A. That is my understanding, yes.</p> <p>16 EARLE, Q.C.:</p> <p>17 Q. Okay. Those that you did get approved, how</p> <p>18 long did it take?</p> <p>19 MR. COLLINS:</p> <p>20 A. We are still working on some of those suits</p> <p>21 and we've been a year into it.</p> <p>22 EARLE, Q.C.:</p> <p>23 Q. The question was those that you did get</p> <p>24 approved, how long did it take?</p> <p>25 MR. COLLINS:</p>

Page 189	Page 191
<p>1 A. Those seven suits have not been approved.</p> <p>2 EARLE, Q.C.:</p> <p>3 Q. None of the suits have been approved?</p> <p>4 MR. COLLINS:</p> <p>5 A. No.</p> <p>6 EARLE, Q.C.:</p> <p>7 Q. Okay. I thought you said some of them. Now</p> <p>8 item 4.1.2.</p> <p>9 MR. COLLINS:</p> <p>10 A. Okay.</p> <p>11 EARLE, Q.C.:</p> <p>12 Q. And .1, "the bidder shall deliver the suits,</p> <p>13 life jackets, EBS/HUEBA units and PLBs to the</p> <p>14 heliport and pick them up when they return</p> <p>15 from offshore. The helicopter provider shall</p> <p>16 issue suits, life vests and EBS/HUEBA bottles</p> <p>17 to all passengers travelling offshore."</p> <p>18 EARLE, Q.C.:</p> <p>19 Q. I take it that you understood from this</p> <p>20 paragraph here that there was no obligation on</p> <p>21 the part of Helly Hansen in respect of seeing</p> <p>22 to it that the suits fit the passengers on the</p> <p>23 helicopters?</p> <p>24 MR. COLLINS:</p> <p>25 A. That is correct.</p>	<p>1 suit systems, and three days -- sorry, four</p> <p>2 days on fittings.</p> <p>3 EARLE, Q.C.:</p> <p>4 Q. So you trained helicopter company personnel</p> <p>5 for four days --</p> <p>6 MR. COLLINS:</p> <p>7 A. Correct.</p> <p>8 EARLE, Q.C.:</p> <p>9 Q. On fitting suits? That's correct, isn't it?</p> <p>10 MR. COLLINS:</p> <p>11 A. That is correct.</p> <p>12 EARLE, Q.C.:</p> <p>13 Q. So I take it from the fact that it takes</p> <p>14 somebody four days to learn how to do this,</p> <p>15 that it is not something that you can figure</p> <p>16 out on your own, it requires some significant</p> <p>17 training by people with expertise?</p> <p>18 MR. COLLINS:</p> <p>19 A. By the new protocol we developed, that</p> <p>20 protocol to go through and do fittings with</p> <p>21 students so that they can see real life</p> <p>22 examples takes four days.</p> <p>23 EARLE, Q.C.:</p> <p>24 Q. Well, there's not much point doing it on</p> <p>25 dolls, is it?</p>
Page 190	Page 192
<p>1 EARLE, Q.C.:</p> <p>2 Q. Now the next paragraph says, "The bidder shall</p> <p>3 train the helicopter company in how to</p> <p>4 complete daily inspections and issue all the</p> <p>5 above named equipment".</p> <p>6 MR. COLLINS:</p> <p>7 A. Correct.</p> <p>8 EARLE, Q.C.:</p> <p>9 Q. Did that include training the helicopter</p> <p>10 company in fitting?</p> <p>11 MR. COLLINS:</p> <p>12 A. At that time it did not, no.</p> <p>13 EARLE, Q.C.:</p> <p>14 Q. So we have a gap?</p> <p>15 MR. COLLINS:</p> <p>16 A. Yes.</p> <p>17 EARLE, Q.C.:</p> <p>18 Q. And the result has been that your contract has</p> <p>19 now been amended such that initially Helly</p> <p>20 Hansen personnel fitted the suits, and</p> <p>21 subsequently you trained for a period, I think</p> <p>22 you said, of four days --</p> <p>23 MR. COLLINS:</p> <p>24 A. It was seven day training, three of which</p> <p>25 focused on suit maintenance procedures and</p>	<p>1 MR. COLLINS:</p> <p>2 A. No, there's not.</p> <p>3 EARLE, Q.C.:</p> <p>4 Q. Now if we could go to your presentation, and</p> <p>5 your issues arising.</p> <p>6 MR. COLLINS:</p> <p>7 A. Okay.</p> <p>8 EARLE, Q.C.:</p> <p>9 Q. It says, "The following is an outline of</p> <p>10 issues arising in the first two years of the</p> <p>11 service contract and how they were addressed".</p> <p>12 Are you saying that these are the issues which</p> <p>13 arose, there aren't others?</p> <p>14 MR. COLLINS:</p> <p>15 A. I guess, the only other comments would have</p> <p>16 been that we lumped comfort issues to include</p> <p>17 boot, weight and bulkiness, the stiffness of</p> <p>18 the zipper, that would be classified under the</p> <p>19 comfort issues, but that was grouped as</p> <p>20 comfort issues.</p> <p>21 EARLE, Q.C.:</p> <p>22 Q. And comfort issues, I take it, the wearer is</p> <p>23 told to suck it up and get on with it, is that</p> <p>24 correct?</p> <p>25 MR. COLLINS:</p>

Page 193

Page 195

1 A. The wrist seals are tight for a reason, to  
2 keep water out, so the trade off at times  
3 would be some comfort for suit performance.  
4 EARLE, Q.C.:  
5 Q. Yeah. Mr. Collins, when was Helly Hansen told  
6 the suits don't fit?  
7 MR. COLLINS:  
8 A. Outside of the seven individuals that we dealt  
9 with early on with custom suits, we started to  
10 get a fitting request from operators after the  
11 incident in March.  
12 EARLE, Q.C.:  
13 Q. When did those seven requests arise?  
14 MR. COLLINS:  
15 A. They would have been at various stages within  
16 -- they were not all on the same day. They  
17 would have been within the first year of the  
18 contract.  
19 EARLE, Q.C.:  
20 Q. Um. Were you made aware by any of the  
21 operators that there were significant  
22 complaints coming through their Occupational  
23 Health and Safety processes, their committees,  
24 that the suits did not fit?  
25 MR. COLLINS:

1 MR. COLLINS:  
2 A. Which without taking away some of the  
3 restrictions of the standard, you would be  
4 limited in terms of what you could do, but it  
5 was not indicated to us that for bulk of suit,  
6 that suit did not fit somebody.  
7 EARLE, Q.C.:  
8 Q. I put it to you that the experience post the  
9 crash has been that we have discovered that  
10 there are people in respect of whom not only  
11 do the seals not fit, but because of the shape  
12 of their body, and some of them may have a  
13 large head, but not be particularly tall, that  
14 they're ending up wearing a larger size than  
15 they would ordinarily wear if, for instance,  
16 they were buying a suit of clothes. Would you  
17 agree that that's been one of the things  
18 that's come up after the crash?  
19 MR. COLLINS:  
20 A. It is possible for somebody that had a large  
21 head to have a suit that would zip up, may  
22 have had to go up a size, yes.  
23 EARLE, Q.C.:  
24 Q. Yeah, and someone complaining about that, you  
25 would consider that a comfort issue, wouldn't

Page 194

Page 196

1 A. Prior to -- the feedback coming back would  
2 have been post incident.  
3 EARLE, Q.C.:  
4 Q. I'm talking prior to the crash.  
5 MR. COLLINS:  
6 A. We would have been made aware of some comfort  
7 issues, but in terms of suit fittings, no.  
8 EARLE, Q.C.:  
9 Q. Were you -- my question is, were you made  
10 aware that there were significant complaints  
11 that the suits did not fit? That's the  
12 language.  
13 MR. COLLINS:  
14 A. And my reply to that would be no.  
15 EARLE, Q.C.:  
16 Q. No. There is no possibility, is there, Mr.  
17 Collins, that you were told that the suits did  
18 not fit, and you assumed because a bulky suit  
19 might be perceived by somebody as not fitting,  
20 that not fitting was a comfort issue?  
21 MR. COLLINS:  
22 A. The bulkiness of the suit is in part due to  
23 the foam requirements within the standard.  
24 EARLE, Q.C.:  
25 Q. Uh-hm.

1 you?  
2 MR. COLLINS:  
3 A. I would say, no, because obviously in our  
4 custom suits we did do changes to the body of  
5 the suit, and we also did some hood changes  
6 for individuals in that case. So if it was a  
7 matter of the information that came back to us  
8 being the suit's uncomfortable, well, you're  
9 going to perceive it as a comfort issue, but  
10 if the -- if it came back, I can't zip up the  
11 suit that properly fits me, then that would  
12 have been addressed.  
13 EARLE, Q.C.:  
14 Q. My point is looking at the matter in  
15 retrospect, back over your shoulder, is there  
16 any possibility that Helly Hansen received  
17 information that was indicating that the suit  
18 did not fit in the sense of did not fit  
19 properly, in the sense of why 180 people are  
20 still not flying, and thought that that was  
21 comfort issues?  
22 MR. COLLINS:  
23 A. No, because many of the people --  
24 EARLE, Q.C.:  
25 Q. No possibility?

Page 197

1 MR. COLLINS:  
 2 A. Many of the people who are still flying today  
 3 -- many of the people who were flying and that  
 4 we may have pulled for non-fit issues, some of  
 5 them did not feel that the suits did not fit  
 6 them, and it would have been the decision on  
 7 our staff to pull them from flight.  
 8 EARLE, Q.C.:  
 9 Q. Uh-hm. Let's look at your survey.  
 10 MR. COLLINS:  
 11 A. Okay.  
 12 EARLE, Q.C.:  
 13 Q. The first question, "I am able -- well, it's a  
 14 statement, actually, it's statements and  
 15 people are asked to agree or disagree, "I am  
 16 able to pull zipper suit all the way to the  
 17 top", and 14 percent of the people disagree  
 18 with that, right?  
 19 MR. COLLINS:  
 20 A. Correct.  
 21 EARLE, Q.C.:  
 22 Q. And then you have the next statement, "I have  
 23 no difficulty completing face seal for take  
 24 off and landing", and 23 percent disagree with  
 25 that, and in the strongly disagree category,

Page 198

1 we see the figures are 8 percent and 7  
 2 percent?  
 3 MR. COLLINS:  
 4 A. Correct.  
 5 EARLE, Q.C.:  
 6 Q. Now would you agree with me that the  
 7 conclusion from this is that there was 8 or 9  
 8 percent of people who can get the zipper all  
 9 the way up, but have difficulty completing the  
 10 face seal?  
 11 MR. COLLINS:  
 12 A. From our standpoint on that, it was viewed as  
 13 part of the same, and that's why the  
 14 verification piece was put in and continued  
 15 actually to ensure that people could zip up.  
 16 EARLE, Q.C.:  
 17 Q. But, Mr. Collins, there is a total of 22  
 18 percent who say they disagree or strong  
 19 disagree with, "I am able to pull zipper suit  
 20 all the way to the top", but there is a total  
 21 of 30 percent who disagree or strongly  
 22 disagree with the statement, "I have no  
 23 difficulty completing face seal for take off  
 24 and landing". So there's -- I put it to you  
 25 that there's 8 percent there potentially who

Page 199

1 can get the zipper all the way up, but have a  
 2 problem getting the seal.  
 3 MR. COLLINS:  
 4 A. Or there's 8 percent there that can get the  
 5 zipper all the way up, but find the zipper  
 6 stiff.  
 7 EARLE, Q.C.:  
 8 Q. There's nothing there about the zipper being  
 9 stiff, Mr. Collins.  
 10 MR. COLLINS:  
 11 A. But nowhere there does it say "not fit", it  
 12 says "no difficulty". So somebody may have  
 13 had -- found it difficult to zip up related to  
 14 the stiffness of the zipper, because you have  
 15 to be able to zip up the suit to complete your  
 16 face seal.  
 17 EARLE, Q.C.:  
 18 Q. Mr. Collins, there's something that cries out  
 19 for investigation here, isn't there?  
 20 MR. COLLINS:  
 21 A. And as we stated in the presentation, the  
 22 continued practise of verifying people's  
 23 ability to zip up was checked prior to flight,  
 24 as we heard in Mr. Decker's testimony, and  
 25 people who could not zip up were flagged.

Page 200

1 EARLE, Q.C.:  
 2 Q. Yes, but, Mr. Collins, the problem is that 8  
 3 percent more of your sample had difficulty  
 4 getting the face seal than had difficulties  
 5 zipping up. Doesn't that tell you that  
 6 there's potentially another cause for  
 7 difficulty getting the face sealed?  
 8 MR. COLLINS:  
 9 A. At that time, indications were regarding the  
 10 zipper.  
 11 EARLE, Q.C.:  
 12 Q. What did you do to follow up on that, Mr.  
 13 Collins, at that time, other than, say, make  
 14 sure people got the zipper up?  
 15 MR. COLLINS:  
 16 A. Well, it was -- the next step was to ensure  
 17 that people could get the zipper up, and if  
 18 they could not, then that was flagged, and  
 19 there was a possibility for a custom suit for  
 20 them.  
 21 EARLE, Q.C.:  
 22 Q. Did anybody say we'd better check and see if  
 23 there are people who can get the zipper up,  
 24 but are still not getting the face sealed?  
 25 MR. COLLINS:

Page 201	Page 203
<p>1 A. From my recollection, all the discussions 2 around that was about getting the zipper up. 3 EARLE, Q.C.: 4 Q. Mr. Collins, when Helly Hansen was called in 5 to do the fittings, were you surprised at the 6 numbers who did not have properly fitting 7 suits? 8 MR. COLLINS: 9 A. As this was a new process that had never been 10 tested before, we allowed the process to 11 dictate, you know, how many people would be 12 put on the "no fly" list, and in terms of -- 13 you know, nobody had done mobility tests 14 before, nobody had done the amount of visual 15 test, the visual checks and measurements that 16 we had done, so at the end of the day, there's 17 a possibility that the suit would not fit 18 somebody, that is correct. In terms of the 19 sheer number, to be honest, the world had been 20 turned upside down, so we were checking this 21 more vigorously than anybody has, as we know, 22 in the world, so that we could check -- so in 23 terms of were we surprised by the number, 24 where it was, I would say somewhat. 25 EARLE, Q.C.:</p>	<p>1 for them when they wished them as well? 2 MR. COLLINS: 3 A. As custom suits were addressed in our reply to 4 the RFP, we indicated that we could do custom 5 suits, so it would have been our understanding 6 that they would have been aware that custom 7 suits were a possibility. 8 EARLE, Q.C.: 9 Q. That's a little different than you having an 10 obligation to supply them? 11 MR. COLLINS: 12 A. If requested, we would have supplied custom 13 suits and would have had to have a contract 14 amendment done to cover off the commercial 15 side of that work. 16 EARLE, Q.C.: 17 Q. Which operators have requested -- had 18 requested custom suits prior to 2009? 19 MR. COLLINS: 20 A. I believe the seven suits that are in are all 21 Hibernia. I would have to double check. 22 EARLE, Q.C.: 23 Q. Could you double check on that? 24 MR. COLLINS: 25 A. Absolutely.</p>
<p>Page 202</p> <p>1 Q. Thank you. The contracts that you signed with 2 the three different operators here, it appears 3 to me that only the ExxonMobil contract 4 specifies the provision of custom suits. In 5 the ExxonMobil contract, which is Exhibit F -- 6 MR. COLLINS: 7 A. Yes, Exhibit 78. 8 EARLE, Q.C.: 9 Q. Page 2 of 4 of that, Paragraphs 3.1.4 and 10 3.1.5, that's an explicit statement of your 11 obligation to supply full customization of 12 suits when requested by owner, and likewise to 13 supply customization of suit cuffs and boots 14 when requested by owner. The other two 15 contracts, I went through them, I couldn't 16 find any obligation to provide custom suits. 17 MR. COLLINS: 18 A. Having a quick look through that, that appears 19 to be correct. 20 EARLE, Q.C.: 21 Q. Did you understand then that it was only HMDC 22 or ExxonMobil that you had to provide 23 customized suits for, or was it implicit in 24 your understandings with Husky and Petro 25 Canada that you had to provide custom suits</p>	<p>Page 204</p> <p>1 EARLE, Q.C.: 2 Q. And provide us with that information. Both 3 Petro Canada and Husky had appendices or 4 schedules to their contract with respect to 5 quality management system reporting in the 6 case of Petro Canada. That's page 7, Appendix 7 G - sorry page 8. 8 ROIL, Q.C.: 9 Q. That's Exhibit 87. 10 EARLE, Q.C.: 11 Q. Mr. Collins was going that quickly this 12 morning, we were very lucky that we could get 13 his answers, let alone the exhibit number. 14 Husky's at Element 14, page 13 of 13. In the 15 Petro Canada one, it says under quality 16 management system reporting, "Contractor shall 17 submit on a periodic basis determined by the 18 company a quality activity report. The report 19 shall include the overall quality management 20 system activity for a contractor and any 21 identified suppliers or subcontractors. The 22 report shall be tabled for review and 23 discussion during regularly scheduled contract 24 or company review meetings", and then there's 25 a listing of the details. Have you supplied</p>

Page 205

1 such reports to Petro Canada?

2 MR. COLLINS:

3 A. What I do have noted is that Suncor or Petro

4 Canada has done an audit of our Newfoundland

5 operating facilities.

6 EARLE, Q.C.:

7 Q. When was that?

8 MR. COLLINS:

9 A. I don't have the date in front of me.

10 EARLE, Q.C.:

11 Q. So you have not supplied a report that's

12 described there?

13 MR. COLLINS:

14 A. We have not supplied a report in the last --

15 since the accident for sure. I'd have to go

16 back and investigate that, but off the top of

17 my head, no.

18 EARLE, Q.C.:

19 Q. The Husky element, as its called, says, "Husky

20 Energy east coast operations will conduct

21 audits of contractors to evaluate overall HSEQ

22 management system performance, and the

23 findings and action items arising from the

24 audits will be communicated to the

25 contractors. Management for review and

Page 206

1 resolution will be tracked by Husky Energy

2 east coast for effective and timely

3 implementation". Has Husky done an audit?

4 MR. COLLINS:

5 A. Husky since '07 has done two audits.

6 EARLE, Q.C.:

7 Q. Husky has done two audits, and have you had

8 anything in respect of that kind of activity

9 from ExxonMobil?

10 MR. COLLINS:

11 A. We've had, as part of the ExxonMobil -- in

12 terms of the Hibernia, I do not have any

13 notations of them conducting an audit on our

14 facility, but in terms of ExxonMobil in terms

15 of our overall operations, we did have a year

16 review meeting with them that did cover off

17 some of the Newfoundland aspects of the

18 business.

19 EARLE, Q.C.:

20 Q. Did any of those reports address the fitting

21 issue?

22 MR. COLLINS:

23 A. Not that I'm aware of.

24 EARLE, Q.C.:

25 Q. Mr. Collins, has Helly Hansen been engaged in

Page 207

1 any review process to assess how it is that,

2 first of all, in the first instance there was

3 this total gap that nobody was trained to do a

4 fitting, and didn't appear to have a clear

5 responsibility to do a fitting, and such that

6 when the issue finally came to a head, there

7 was this large number of people subject to a

8 "no fly" decision? Has Helly Hansen been

9 engaged, either on its own or with the

10 operators, in any review process to examine

11 how this could have happened?

12 MR. COLLINS:

13 A. Our involvement in that would have been as

14 part of the return to flight, the

15 identification that that piece needed to be

16 filled on a go forward basis. It was

17 initially filled by Helly Hansen, and was felt

18 to have that as a long term check at the

19 heliport for fitting, that it was best to

20 train Cougar staff, of which our understanding

21 is that if more Cougar staff need to be

22 trained, we can provide the training for that

23 so that fitting service will be always

24 provided at the heliport and backed up by our

25 shop, but in terms of as a look back, we have

Page 208

1 not at this time; we've been focused in terms

2 of the current fitting and current suit

3 development.

4 EARLE, Q.C.:

5 Q. So you've neither looked back yourself, nor

6 been asked to engage in the look back with the

7 operators?

8 MR. COLLINS:

9 A. Not at this time.

10 EARLE, Q.C.:

11 Q. I gather this suit is equipped with a hanging

12 loop on the back?

13 MR. COLLINS:

14 A. Hanging loop on the back? There's a grab

15 handle on the back of the suit, on the back of

16 the collar piece. I'll just locate it.

17 Underneath there's a grab handle here.

18 EARLE, Q.C.:

19 Q. Uh-hm. So what is the recommended fashion for

20 these suits to be hung or stored during the

21 three week period that the wearer is on the

22 offshore installation?

23 MR. COLLINS:

24 A. They can be either stored hanging or in a bag.

25 EARLE, Q.C.:

Page 209	Page 211
<p>1 Q. Should they be hung on a hanger?</p> <p>2 MR. COLLINS:</p> <p>3 A. That would be nice. I mean, obviously, we</p> <p>4 hang it on an hanger here, but in terms of our</p> <p>5 explicit directions to the operators in terms</p> <p>6 of how the suits should be hung --</p> <p>7 MR. COLLINS:</p> <p>8 A. Uh-hm.</p> <p>9 EARLE, Q.C.:</p> <p>10 Q. I'm not sure we've given specific instructions</p> <p>11 in terms of every suit must be hung on a</p> <p>12 hanger. The only requirements on that are if</p> <p>13 the suit is going to be stored in a cold</p> <p>14 environment, then it must be hung on a hanger.</p> <p>15 EARLE, Q.C.:</p> <p>16 Q. Uh-hm, and how often did you say the suit is</p> <p>17 fully checked?</p> <p>18 MR. COLLINS:</p> <p>19 A. Every eighth cycle or six months would be the</p> <p>20 full testing, including inflation and testing</p> <p>21 of the inflatable as well as leak testing.</p> <p>22 EARLE, Q.C.:</p> <p>23 Q. Uh-hm.</p> <p>24 MR. COLLINS:</p> <p>25 A. And then every cycle is it visually inspected.</p>	<p>1 A. No, those are also checked during visual</p> <p>2 inspections. So visual inspections, they</p> <p>3 would do cuff checks, and at the technician's</p> <p>4 tables they have the charts with the size that</p> <p>5 the cuffs must be within. They would measure</p> <p>6 the cuffs.</p> <p>7 EARLE, Q.C.:</p> <p>8 Q. As I said, the concern is mostly about the</p> <p>9 hood.</p> <p>10 MR. COLLINS:</p> <p>11 A. Okay.</p> <p>12 COMMISSIONER:</p> <p>13 Q. Mr. Earle, this probably is a good time to</p> <p>14 take our break.</p> <p>15 EARLE, Q.C.:</p> <p>16 Q. That's fine.</p> <p>17 (RECESS)</p> <p>18 EARLE, Q.C.:</p> <p>19 Q. Mr. Collins, the CORD testing, I don't think</p> <p>20 we need to refer to the document, am I to</p> <p>21 understand that all that was tested there was</p> <p>22 the inflow of water over a period of time?</p> <p>23 MR. COLLINS:</p> <p>24 A. As we see in the summary, yes. I mean, they</p> <p>25 measured -- they used an alternate test method</p>
Page 210	Page 212
<p>1 EARLE, Q.C.:</p> <p>2 Q. Mr. Collins, we haven't talked very much about</p> <p>3 the technical specifications of these suits,</p> <p>4 but one of the issues that has come to my</p> <p>5 attention from some of the workers, they have</p> <p>6 concerns that because the suits are multiple</p> <p>7 users, that -- and there are issues of fit,</p> <p>8 that people will make the suits fit in the</p> <p>9 sense that, particularly with respect to the</p> <p>10 hood, that someone who has a large head, but</p> <p>11 not an overly large body, might well take a</p> <p>12 smaller suit and with a fair bit of force get</p> <p>13 the hood over and it's a tight seal for sure.</p> <p>14 Are there any issues with overstretch of the</p> <p>15 neoprene because of that kind of use?</p> <p>16 MR. COLLINS:</p> <p>17 A. Is there potential issues; yes, and that's why</p> <p>18 part of our maintenance procedures with things</p> <p>19 like cuffs and that, to measure those</p> <p>20 components to make sure they're still within</p> <p>21 specification.</p> <p>22 EARLE, Q.C.:</p> <p>23 Q. Well, that would only happen once every eight</p> <p>24 flights, right?</p> <p>25 MR. COLLINS:</p>	<p>1 to what's in the standard that was developed</p> <p>2 to test the suit in simulated conditions, and</p> <p>3 that they did a leakage measurement which is</p> <p>4 what was reported in the summary in Section 7,</p> <p>5 yes.</p> <p>6 EARLE, Q.C.:</p> <p>7 Q. And the test was of a half hour duration?</p> <p>8 MR. COLLINS:</p> <p>9 A. The test was two components. One was a</p> <p>10 ditching and an egress from the helicopter to</p> <p>11 the surface, a 20 meter swim, and then a life</p> <p>12 raft boarding, and then secondary there was a</p> <p>13 half hour in the water in wind and waves.</p> <p>14 EARLE, Q.C.:</p> <p>15 Q. So the longest duration in the water was a</p> <p>16 half hour?</p> <p>17 MR. COLLINS:</p> <p>18 A. That is correct.</p> <p>19 EARLE, Q.C.:</p> <p>20 Q. Notwithstanding how long it might take some of</p> <p>21 us to swim 20 meters in one of those things.</p> <p>22 Was there any consideration of measuring the</p> <p>23 thermal effect of the water coming in?</p> <p>24 MR. COLLINS:</p> <p>25 A. I'm not sure. This was not a study that was</p>



<p style="text-align: right;">Page 213</p> <p>1 commissioned by us, so it would be a good 2 question for CAPP, but from the results, it 3 indicates that where the leakage was less than 4 what was measured in the CGSB, that it was 5 concluded that the thermal value would be 6 higher than the thermal requirement in the 7 standard. 8 EARLE, Q.C.: 9 Q. Uh-hm. As the manufacturer of the suits, do 10 you have any reason to believe that there 11 would not be a continued inflow of water at 12 that same rate if a person was to be in the 13 water for an hour, an hour and a half? 14 MR. COLLINS: 15 A. Without doing a long test, it would be, I 16 guess, speculation. Looking at the water 17 ingress immersion numbers, they are all very 18 low and I believe in the report that in the 19 current test method it assumes that that would 20 be linear, in terms of you take your water 21 ingress for one hour and then use a three 22 multiplier, but in terms of do we believe that 23 the water ingress would follow at the same 24 rate, there's no - there's nothing showing 25 here that would show that that would be the</p>	<p style="text-align: right;">Page 215</p> <p>1 let's take the half hour stretch. Do we know 2 if water came in evenly through that half 3 hour, do we know if it came in at the 4 beginning? 5 MR. COLLINS: 6 A. We only have the result for the total of the 7 half hour. 8 EARLE, Q.C.: 9 Q. You only have the result -- so we don't know, 10 for instance, if the seal started to 11 deteriorate over time? 12 MR. COLLINS: 13 A. A definitive no -- I guess, the answer to that 14 would be, no, we do not know, although I 15 wouldn't expect the seals to deteriorate in 16 sea water because of the amount of testing 17 that's done on components in half an hour. 18 EARLE, Q.C.: 19 Q. Yes, I can understand on the components, but 20 what about the individuals, the individuals 21 particularly in cold water, the body changes, 22 right? If you got somebody that's out there 23 in the North Atlantic with their body 24 temperature dropping -- 25 MR. COLLINS:</p>
<p style="text-align: right;">Page 214</p> <p>1 case. 2 EARLE, Q.C.: 3 Q. I mean, we don't know, for instance, if there 4 was more ingress during the swimming than 5 another part of the test, do we? 6 MR. COLLINS: 7 A. Well, in Table 3, on page 11 of the report, it 8 breaks down the water ingress by the water 9 egress on the egress portion, and that was 10 measured separately than the water ingress in 11 the immersion portion, so, for example, the 12 extra small had 32 grams of leakage in the 13 egress, but only 8 in the immersion. So for 14 the bulk of the subjects, the water ingress in 15 the immersion was lower than the water ingress 16 during the egress, so that would indicate 17 that, no, it would not continue to be linear 18 in terms of an increase because the first 19 chunk of the total water ingress would 20 generally come from the egress from the 21 helicopter, and once you're on the surface 22 that you would not get as much water into the 23 suit. 24 EARLE, Q.C.: 25 Q. Yeah, but, I mean, do we know, you know --</p>	<p style="text-align: right;">Page 216</p> <p>1 A. Correct. 2 EARLE, Q.C.: 3 Q. The physical body changes, right. Have you 4 done any testing to take account of that? 5 MR. COLLINS: 6 A. I'm not aware of a test method that is 7 currently available to do that test. 8 EARLE, Q.C.: 9 Q. Have any tests been done in any actual at sea 10 conditions? 11 MR. COLLINS: 12 A. No, they have not because they have not been 13 required by the standards. 14 EARLE, Q.C.: 15 Q. Now there are -- there's further thermal 16 testing being done? 17 MR. COLLINS: 18 A. On which product? 19 EARLE, Q.C.: 20 Q. On the E-452? 21 MR. COLLINS: 22 A. I'm not aware of such further testing. I 23 understand that they're doing the same 24 simulation using the HTS1 suits next Friday. 25 EARLE, Q.C.:</p>

Page 217

1 Q. Okay. Is that thermal testing?  
 2 MR. COLLINS:  
 3 A. I would assume that that would be --  
 4 EARLE, Q.C.:  
 5 Q. Or is that ingress?  
 6 MR. COLLINS:  
 7 A. No, this would be the same testing that the --  
 8 the same test protocol that this report was  
 9 written from.  
 10 EARLE, Q.C.:  
 11 Q. Because I understood from Mr. Barnes yesterday  
 12 that at least he understood that there was  
 13 some further thermal testing, and I must  
 14 confess, I don't know which suit he was  
 15 referring to.  
 16 MR. COLLINS:  
 17 A. My understanding of the testing next week, our  
 18 request has been to supply HTS1 suits in a  
 19 full size range with two liners, with a  
 20 technician to handle the liners, and we are  
 21 allowed observers at the test session to do  
 22 this same test protocol on the HTS1 to measure  
 23 water ingress, and depending upon the tests  
 24 from the water ingress, I'm sure that will  
 25 then dictate any additional testing is done.

Page 218

1 EARLE, Q.C.:  
 2 Q. So you're not aware of any further thermal  
 3 testing?  
 4 MR. COLLINS:  
 5 A. I am not.  
 6 EARLE, Q.C.:  
 7 Q. Now the -- it's my understanding from your  
 8 evidence that we should see some approvals of  
 9 modified or custom suits, you indicated I  
 10 think, at the end of this week?  
 11 MR. COLLINS:  
 12 A. We expect to have the aviation approval for  
 13 the HTS1, and I've been checking my phone  
 14 during every break.  
 15 EARLE, Q.C.:  
 16 Q. For people who are on the installations now,  
 17 the target group for those suits, will they  
 18 have to wait until they come back to shore to  
 19 receive those suits, or will they be delivered  
 20 to the installations with Helly Hansen support  
 21 to see that they fit properly?  
 22 MR. COLLINS:  
 23 A. If the person has already been cleared in a  
 24 fitting at the shop, and is cleared for flight  
 25 in the HTS1, the HTS1 will be delivered

Page 219

1 offshore and they will be able to fly home.  
 2 We have been in discussion with the operators  
 3 as to providing staff to fly offshore and do  
 4 fittings if they are required and that list  
 5 left to fit in the HTS1 is only 40 people, so  
 6 if one of those 40 people is currently  
 7 offshore and has not been fitted, we are in  
 8 discussions with the operators right now about  
 9 providing staff to fly offshore, conduct the  
 10 fitting offshore, so they can fly home.  
 11 EARLE, Q.C.:  
 12 Q. Okay. Mr. Barnes (sic), the number of suits  
 13 that you originally estimated was necessary  
 14 for the Newfoundland offshore was 1200 suits?  
 15 MR. COLLINS:  
 16 A. Correct.  
 17 EARLE, Q.C.:  
 18 Q. That's quite a lot of suits.  
 19 MR. COLLINS:  
 20 A. Yes.  
 21 EARLE, Q.C.:  
 22 Q. Given that you estimated that number of suits  
 23 in the first instance, how much bigger a  
 24 project would it be to personalize the suits  
 25 to get it into a situation where a suit was

Page 220

1 identified as being that of, for instance, the  
 2 gentleman who is here with me today, Mr.  
 3 Hussey, his suit and no one else's suit?  
 4 MR. COLLINS:  
 5 A. It could be significant. Depending if the  
 6 person being fitted was cleared to fly in a  
 7 stock suit, at that point it would be a matter  
 8 of increasing the suit pool by the number of  
 9 suits required by the number of persons, so  
 10 you would have an assigned suit to every  
 11 person. If it is customizing a suit so it is  
 12 tailored to each individual, that would take a  
 13 significant amount of time, because the first  
 14 step is obviously, you know, the measurements  
 15 piece of which we have measurements for a  
 16 significant number of people offshore, but  
 17 then you have to go through the individual  
 18 design, any approval work that would have to  
 19 be required, and now you're subject to timing  
 20 around lab availability, the volume of suits  
 21 that you will be putting through, and the  
 22 process that both -- the standards body would  
 23 take to file the documentation, and as we've  
 24 seen thus far, trying to get some custom suits  
 25 approved has almost taken us a year.

Page 221	Page 223
<p>1 EARLE, Q.C.:</p> <p>2 Q. I'm not talking about custom suits for</p> <p>3 everybody. I'm talking about personal suits.</p> <p>4 I mean, we have everybody but 180 people who</p> <p>5 now have a suit that fits them.</p> <p>6 MR. COLLINS:</p> <p>7 A. Correct.</p> <p>8 EARLE, Q.C.:</p> <p>9 Q. And we have 180 people, a very large number of</p> <p>10 them, I take it, are going to be looked after</p> <p>11 by this HTS1 suit, right?</p> <p>12 MR. COLLINS:</p> <p>13 A. 115 of those have already been fitted and</p> <p>14 cleared for flight in the HTS1, yes.</p> <p>15 EARLE, Q.C.:</p> <p>16 Q. Right. So given that we're using these two</p> <p>17 models of suits, how much bigger a project is</p> <p>18 there, given the number of people we have</p> <p>19 working in the offshore in Newfoundland, to</p> <p>20 have personal suits, a suit that Mr. Hussey</p> <p>21 would pick up at the heliport when he goes out</p> <p>22 for his three weeks, keep it in his room,</p> <p>23 bring back, hand in to the technician, it's</p> <p>24 cleaned, it's checked, whatever has to be done</p> <p>25 on that particular rotation?</p>	<p>1 Q. But even as we get through the problem of</p> <p>2 these 180 people, we would anticipate more</p> <p>3 than -- more custom suits? We started off</p> <p>4 with seven custom suits. We're going to be,</p> <p>5 what, up to 25/30 custom suits?</p> <p>6 MR. COLLINS:</p> <p>7 A. Based on the numbers we have right now, there</p> <p>8 are 25 people, as stated earlier, that have</p> <p>9 not been cleared to fly in the HTS1. We have</p> <p>10 added -- we have designed three new hood sizes</p> <p>11 for the HTS1, and we are fitting people in</p> <p>12 those to see if it's a solution. If it is a</p> <p>13 solution for them, we will add those sizes to</p> <p>14 the size mix and go through the approval</p> <p>15 process, and we are flagging right now that</p> <p>16 our total custom suit pool will probably at</p> <p>17 this point in time, pending the rest of the</p> <p>18 fittings, is sitting at 12 people.</p> <p>19 EARLE, Q.C.:</p> <p>20 Q. Okay.</p> <p>21 MR. COLLINS:</p> <p>22 A. That will require true custom individual</p> <p>23 suits.</p> <p>24 EARLE, Q.C.:</p> <p>25 Q. And just one further question, and it's really</p>
<p>Page 222</p> <p>1 MR. COLLINS:</p> <p>2 A. If it is -- if we're talking about stock sized</p> <p>3 suits, so one of the 11 sizes currently</p> <p>4 available or one of the seven sizes of the</p> <p>5 HTS1's that we expect approval shortly, that</p> <p>6 would just be a matter of production and then</p> <p>7 logistics. So that would take, depending on</p> <p>8 the total number of suits, probably anywhere</p> <p>9 between six and eighteen months.</p> <p>10 EARLE, Q.C.:</p> <p>11 Q. And, of course, we're going to be into to some</p> <p>12 degree personalized suits, in any event, as we</p> <p>13 work through this problem, right, because it</p> <p>14 appears we're going to have more custom suits?</p> <p>15 MR. COLLINS:</p> <p>16 A. As there are new hires, you know, one of the</p> <p>17 processes that's in place now and that we're</p> <p>18 seeing at the shop is that a lot of new hires,</p> <p>19 their first stop after being hired is the</p> <p>20 Helly Hansen shop for a fitting. So at any</p> <p>21 time there is a new hire, there becomes a</p> <p>22 fitting, which then becomes a possible</p> <p>23 standard suit, modified suit, or a custom</p> <p>24 suit.</p> <p>25 EARLE, Q.C.:</p>	<p>Page 224</p> <p>1 just to clarify, an impression, people</p> <p>2 watching this might have the impression that,</p> <p>3 you know, we're talking about really oddly</p> <p>4 shaped people who made it to this "no fly"</p> <p>5 list. We are not talking about oddly shaped</p> <p>6 people, we're talking about people who just</p> <p>7 happen to have maybe a head the size that you</p> <p>8 would expect on a tall person and they happen</p> <p>9 to be maybe five foot six or five foot seven?</p> <p>10 MR. COLLINS:</p> <p>11 A. To stay with your example, yes. Obviously,</p> <p>12 you know, to protect the people's privacy that</p> <p>13 we have as a custom list, obviously we have a</p> <p>14 lot of measurements, I don't want to speak</p> <p>15 into the specific reasons, but there are some</p> <p>16 instances where to the naked eye, the person</p> <p>17 would look like a normal person, if that's</p> <p>18 what you're asking, and that may still have a</p> <p>19 suit fit issue, but there may be other cases</p> <p>20 outside of that that I would just prefer not</p> <p>21 to speak about based on people's privacy.</p> <p>22 EARLE, Q.C.:</p> <p>23 Q. Mr. Hussey, who is my advisor today, is one of</p> <p>24 those people, and I'm sure he's pleased to</p> <p>25 know that he looks like a normal person.</p>

Page 225	Page 227
<p>1 MR. COLLINS: 2 A. And I believe that I was at the heliport the 3 day that Mr. Hussey's fitting took place. 4 EARLE, Q.C.: 5 Q. Thank you, Mr. Collins. 6 MR. COLLINS: 7 A. Perfect. Thank you. 8 COMMISSIONER: 9 Q. Thank you, Mr. Earle. Okay, Ms. O'Brien. 10 MR. MARK COLLINS - EXAMINATION BY MS. KATE O'BRIEN: 11 MS. O'BRIEN: 12 Q. Good afternoon, Mr. Collins. 13 MR. COLLINS: 14 A. Good afternoon. 15 MS. O'BRIEN: 16 Q. Kate O'Brien. I'm not going to be very long 17 with you. I just have really a couple of 18 questions. One of -- something that came out 19 of your testimony this morning, and I'd like 20 you to give me a little more clarification if 21 you could. 22 MR. COLLINS: 23 A. Okay. 24 MS. O'BRIEN: 25 Q. I understood that when you were getting ready</p>	<p>1 suits were being used in Nova Scotia and in 2 Newfoundland, all those suits previous to this 3 standard would have had dual approval. 4 MS. O'BRIEN: 5 Q. Okay. 6 MR. COLLINS: 7 A. I believe so. 8 MS. O'BRIEN: 9 Q. Sure. So it was everyone was going on the 10 basis that for the helicopter transport suits, 11 the ones that were used actually for 12 helicopter transport should meet both 13 standards? 14 MR. COLLINS: 15 A. Correct. 16 MS. O'BRIEN: 17 Q. Okay. But this is what I don't get, so 18 everyone was understanding yes, get it--you 19 know, we're going to meet the two standards. 20 We're going to meet the two standards. Get a 21 suit that meets the two standards, and then 22 boom, all of a sudden now we're saying you 23 don't really need the second standard. Just 24 go with meeting the one standard. 25 MR. COLLINS:</p>
<p>Page 226</p> <p>1 to bid on this particular project to provide 2 these suits, you already had the E-452 just 3 about ready to go, and you had already 4 designed that suit to meet both the immersion 5 standard and the helicopter passenger 6 transport standard? 7 MR. COLLINS: 8 A. Correct. 9 MS. O'BRIEN: 10 Q. Okay, and you said in your evidence earlier 11 today that the reason you had done that is 12 that when the Newfoundland operators put out 13 the call for the previous suit, they had 14 required that dual standard, and it was known, 15 I think you said, that they would continue to 16 require that dual approval? 17 MR. COLLINS: 18 A. And it was not only the Newfoundland 19 operators, but the Nova Scotia operators at 20 that time also had a suit that had dual 21 standards. 22 MS. O'BRIEN: 23 Q. Okay. 24 MR. COLLINS: 25 A. So the entire east coast, although different</p>	<p>Page 228</p> <p>1 A. I guess, from an operational point of view, 2 and I believe the requirements are a little 3 different in Nova Scotia and Newfoundland and 4 it may be a better question for the operators, 5 is that with more experience in the Nova 6 Scotia operation, they use this suit as also 7 their second 100 percent of the marine 8 abandonment suits that are on board the rigs 9 offshore and that was part of what drove the 10 requirement for having it approved to both the 11 marine standard, because it would serve a dual 12 purpose. While used on the aircraft, it would 13 meet the helicopter transport standard and 14 while used on the platform, it could be 15 counted as their second 100 percent of marine 16 abandonment suits. So you would have a 17 universal fit marine abandonment suit for 18 everybody on the platform and you would have 19 our suit that could count as a second 100 20 percent. 21 MS. O'BRIEN: 22 Q. What do you mean by second 100 percent? 23 MR. COLLINS: 24 A. So in terms of a safety measure, my 25 understanding is that generally that you would</p>

Page 229

1 have more than 100 percent of the suits on  
 2 board. So--I'm getting a little out of my  
 3 comfort zone here because I have limited  
 4 knowledge on this, but the second 100 percent,  
 5 so you would be required to have 100 percent.  
 6 So if you had 50 people on board the platform,  
 7 you would have 100 marine abandonment suits  
 8 available to them so in the event of an  
 9 emergency, there were more suits than people,  
 10 so somebody wouldn't go without a suit.  
 11 MS. O'BRIEN:  
 12 Q. I understand, okay, and are you saying that  
 13 was in Nova Scotia that that was happening?  
 14 In Newfoundland, as far as you know, do these  
 15 suits serve as the second 100 percent?  
 16 MR. COLLINS:  
 17 A. I'm going to leave that to the Newfoundland  
 18 operators just to make sure that we have 100  
 19 percent accurate answer.  
 20 MS. O'BRIEN:  
 21 Q. Okay. So as far as your understanding is,  
 22 that's the reason that there was that dual  
 23 requirement for the dual standards?  
 24 MR. COLLINS:  
 25 A. Yes, and we've had the dual approved suit now

Page 230

1 for years in Nova Scotia.  
 2 MS. O'BRIEN:  
 3 Q. And so I understand from what you said  
 4 earlier, the only aspects of the immersion  
 5 suit that are, say, different than the  
 6 helicopter transport suit are the actual time  
 7 it takes you to put it on?  
 8 MR. COLLINS:  
 9 A. Time it takes to put it on, requirements for  
 10 minimum inherent buoyancy in terms of a solid  
 11 buoyancy material, i.e. foam. There's not  
 12 requirement in the helicopter suit. So there  
 13 are some differences in the requirements.  
 14 There's some differences in terms of the sizes  
 15 that are generally available for a marine  
 16 abandonment suit.  
 17 MS. O'BRIEN:  
 18 Q. And those are it? That's the complete -  
 19 MR. COLLINS:  
 20 A. Yeah, and to be--on the HTS-1 project, the  
 21 operators have been--in our discussions with  
 22 the operators, they've made it clear that as a  
 23 next step, we would work towards getting the  
 24 marine approval on the HTS-1 as well.  
 25 MS. O'BRIEN:

Page 231

1 Q. Okay.  
 2 MR. COLLINS:  
 3 A. But not at the expense of performance features  
 4 to aid in better comfort and fit of the suits.  
 5 So the example I would always go back to is  
 6 for the sake of passing the marine standard  
 7 and passing the cold don testing, we are not  
 8 going to, you know, have at the expense of  
 9 having to take out the suspension system to  
 10 meet that requirement because the adjustment  
 11 of the suspension system will allow the suit  
 12 to be shortened to be more comfortable for the  
 13 wearer.  
 14 MS. O'BRIEN:  
 15 Q. Okay, all right. Thank you. You cleared up  
 16 that for me nicely. Okay, the other couple of  
 17 questions I have have to do with the request  
 18 for proposals put out by the operators in  
 19 November of 2006. It's Exhibit 76.  
 20 MR. COLLINS:  
 21 A. Yeah.  
 22 MS. O'BRIEN:  
 23 Q. And if you could just go down to Section 3,  
 24 please?  
 25 MR. COLLINS:

Page 232

1 A. Okay.  
 2 MS. O'BRIEN:  
 3 Q. Okay, and the next page of Section 3 because  
 4 it's really Section 3.9 that I'm looking at.  
 5 MR. COLLINS:  
 6 A. Okay.  
 7 MS. O'BRIEN:  
 8 Q. Okay. So I understand here that this is the  
 9 requirement for Helly Hansen to provide the  
 10 breathing apparatus, the HUEBA equipment, and  
 11 I see there that under Section 3.9.4 that you--  
 12 the requirement was to provide 40 of these  
 13 units per helicopter for passengers travelling  
 14 offshore, as well as two for each pilot.  
 15 MR. COLLINS:  
 16 A. Correct.  
 17 MS. O'BRIEN:  
 18 Q. Okay. So that would be one for the pilot and  
 19 one for the copilot say of each helicopter?  
 20 MR. COLLINS:  
 21 A. That would be my understanding from that, yes.  
 22 MS. O'BRIEN:  
 23 Q. Okay. Were those provided?  
 24 MR. COLLINS:  
 25 A. We provided all the EBS units that were

Page 233	Page 235
<p>1 required in the contract on time for start up.</p> <p>2 MS. O'BRIEN:</p> <p>3 Q. So ones for the flight crew?</p> <p>4 MR. COLLINS:</p> <p>5 A. I'd have to look in terms of the actual</p> <p>6 contracted amount, and I do have a separate</p> <p>7 spreadsheets that would breakdown the total</p> <p>8 number of EBS units, appreciating that this is</p> <p>9 now spread over three contracts, but I could</p> <p>10 provide the total suit pool or total HUEBA</p> <p>11 pool that we provided.</p> <p>12 MS. O'BRIEN:</p> <p>13 Q. Okay. Do you know if the flight crew are</p> <p>14 currently using the HUEBA devices?</p> <p>15 MR. COLLINS:</p> <p>16 A. I'm not sure.</p> <p>17 MS. O'BRIEN:</p> <p>18 Q. Okay, and I know that Helly Hansen doesn't</p> <p>19 design or provide any suits that the flight</p> <p>20 crew is wearing, correct?</p> <p>21 MR. COLLINS:</p> <p>22 A. Correct.</p> <p>23 MS. O'BRIEN:</p> <p>24 Q. Okay. Do you know who does?</p> <p>25 MR. COLLINS:</p>	<p>1 PLBS supplied, but right now, I do not know if</p> <p>2 that was specific to the pilots or not.</p> <p>3 MS. O'BRIEN:</p> <p>4 Q. Okay. So do you have any knowledge of whether</p> <p>5 the pilots are currently wearing PLBs?</p> <p>6 MR. COLLINS:</p> <p>7 A. I'm not sure if they're wearing the PLB units</p> <p>8 or not.</p> <p>9 MS. O'BRIEN:</p> <p>10 Q. Okay, great. Thank you very much. Those are</p> <p>11 all my questions. Thank you.</p> <p>12 COMMISSIONER:</p> <p>13 Q. Thank you, Ms. O'Brien. Have you anything to</p> <p>14 ask, Mr. Spencer.</p> <p>15 MR. SPENCER:</p> <p>16 Q. Just a couple.</p> <p>17 COMMISSIONER:</p> <p>18 Q. Yes, okay.</p> <p>19 MR. MARK COLLINS, EXAMINATION BY MR. GEOFFREY SPENCER</p> <p>20 MR. SPENCER:</p> <p>21 Q. Mr. Collins, just a couple of points of</p> <p>22 clarification. You were asked some questions</p> <p>23 about the survey that Helly Hansen had done,</p> <p>24 and particularly some questions about the</p> <p>25 seals. Can you tell us, what were the nature</p>
<p style="text-align: right;">Page 234</p> <p>1 A. I believe it's Viking.</p> <p>2 MS. O'BRIEN:</p> <p>3 Q. Okay. Do you have any knowledge of whether</p> <p>4 the Viking suits are equipped for the HUEBA</p> <p>5 equipment?</p> <p>6 MR. COLLINS:</p> <p>7 A. I have--I only know that because I've seen the</p> <p>8 badge on the suit that says Viking as they've</p> <p>9 walked by.</p> <p>10 MS. O'BRIEN:</p> <p>11 Q. Okay. All right. So likewise, if you go down</p> <p>12 in the request for proposal, I think--or</p> <p>13 actually, sorry, if you go up to the section</p> <p>14 on the personal locator beacons, which is in--</p> <p>15 sorry, 3.8, yes, sorry, it's on the same page.</p> <p>16 I see here also that there was a requirement</p> <p>17 where the anticipated number of PLBs required</p> <p>18 was two for each seat on the helicopters?</p> <p>19 MR. COLLINS:</p> <p>20 A. Correct.</p> <p>21 MS. O'BRIEN:</p> <p>22 Q. So do you know if that include the flight crew</p> <p>23 seats?</p> <p>24 MR. COLLINS:</p> <p>25 A. I would be able to supply the total number of</p>	<p style="text-align: right;">Page 236</p> <p>1 of the complaints that you were getting with</p> <p>2 respect to the seals?</p> <p>3 MR. COLLINS:</p> <p>4 A. The nature of the complaints was that the</p> <p>5 wrist cuffs and face seals were too tight.</p> <p>6 MR. SPENCER:</p> <p>7 Q. People were complaining they were too tight</p> <p>8 and they were uncomfortable?</p> <p>9 MR. COLLINS:</p> <p>10 A. Correct.</p> <p>11 MR. SPENCER:</p> <p>12 Q. And what was Helly Hansen's response to that?</p> <p>13 MR. COLLINS:</p> <p>14 A. In terms of the wrist seals, I mean, obviously</p> <p>15 they're--if it was noted by the operator that</p> <p>16 a particular individual had, for lack of a</p> <p>17 better term, oversized wrists for their frame,</p> <p>18 there was the potential, and I'd have to look</p> <p>19 at the changes made to custom suits, if that</p> <p>20 was actually the case, if there were any</p> <p>21 custom suit made because of wrist changes. As</p> <p>22 far as the seals, that's a part of the process</p> <p>23 of verifying zip up so that the tight seal do</p> <p>24 not interfere with the ability to zip up the</p> <p>25 suit.</p>

Page 237	Page 239
<p>1 MR. SPENCER:</p> <p>2 Q. Okay, and the question had been put to you</p> <p>3 that, you know, people were complaining or it</p> <p>4 had been suggested that people were</p> <p>5 complaining that the suits just don't fit. Do</p> <p>6 you recall were there ever any comments,</p> <p>7 whether it be on the survey or otherwise,</p> <p>8 where people had said to Helly Hansen these</p> <p>9 suits just don't fit?</p> <p>10 MR. COLLINS:</p> <p>11 A. No.</p> <p>12 MR. SPENCER:</p> <p>13 Q. What would you have done if you had received</p> <p>14 those types of comments?</p> <p>15 MR. COLLINS:</p> <p>16 A. Like we did with some people that were</p> <p>17 identified, we would have investigated the</p> <p>18 option for custom suits and proposed changes</p> <p>19 for a custom suit.</p> <p>20 MR. SPENCER:</p> <p>21 Q. Now I understand on the return to flight</p> <p>22 process, Helly Hansen became involved in some</p> <p>23 individual suit fittings and you were asked</p> <p>24 some questions about that. To put that into</p> <p>25 perspective, I know you were asked questions</p>	<p>1 people include--were they just limited to</p> <p>2 people that were regularly travelling to the</p> <p>3 offshore or did they include other people?</p> <p>4 MR. COLLINS:</p> <p>5 A. They would have included folks like summer</p> <p>6 students who had never travelled offshore;</p> <p>7 would have included office staff that would</p> <p>8 fly offshore seldomly would include regulators</p> <p>9 that would travel offshore infrequently, so it</p> <p>10 was not only regular rotators, it involved the</p> <p>11 entire community of people who potentially</p> <p>12 could go offshore.</p> <p>13 MR. SPENCER:</p> <p>14 Q. Okay. And so I guess then in looking at those</p> <p>15 numbers, after you had done those individual</p> <p>16 suit fittings, over 90 percent fit people</p> <p>17 right off the bat?</p> <p>18 MR. COLLINS:</p> <p>19 A. That is correct.</p> <p>20 MR. SPENCER:</p> <p>21 Q. And that includes everyone including people</p> <p>22 that didn't regularly travel offshore?</p> <p>23 MR. COLLINS:</p> <p>24 A. Correct.</p> <p>25 MR. SPENCER:</p>
<p>Page 238</p> <p>1 about were you surprised about how many people</p> <p>2 went on to the no fly list following those</p> <p>3 individual suit fittings. Just to put it into</p> <p>4 perspective, how many people would you have</p> <p>5 checked in the individual suit fitting</p> <p>6 process?</p> <p>7 MR. COLLINS:</p> <p>8 A. To date, approximately 3000.</p> <p>9 MR. SPENCER:</p> <p>10 Q. 3000 people.</p> <p>11 MR. COLLINS:</p> <p>12 A. Is where we have the number.</p> <p>13 MR. SPENCER:</p> <p>14 Q. And how many people ended up on the no fly</p> <p>15 list through that process?</p> <p>16 MR. COLLINS:</p> <p>17 A. Currently on the no fly list is 180, but also</p> <p>18 in terms of modified suits, 107 people have</p> <p>19 sit the modified suits that we put into</p> <p>20 service, so until those that were available</p> <p>21 would have been also no fly, so a total of</p> <p>22 just shy of 300, so it would have been less</p> <p>23 than 10 percent.</p> <p>24 MR. SPENCER:</p> <p>25 Q. And out of those number of people, did those</p>	<p>Page 240</p> <p>1 Q. You were asked as to whether Helly Hansen had</p> <p>2 conducted a look back to see why fittings had</p> <p>3 not been done originally. Let me ask you, I</p> <p>4 guess first to be clear, did the contract</p> <p>5 require Helly Hansen to do individual suit</p> <p>6 fittings?</p> <p>7 MR. COLLINS:</p> <p>8 A. No, it did not.</p> <p>9 MR. SPENCER:</p> <p>10 Q. Is it standard in the industry for a survivor</p> <p>11 suit manufacturer to do individual suit</p> <p>12 fittings?</p> <p>13 MR. COLLINS:</p> <p>14 A. At that time, no. Now it is on the east coast</p> <p>15 of Canada.</p> <p>16 MR. SPENCER:</p> <p>17 Q. And why is it now?</p> <p>18 MR. COLLINS:</p> <p>19 A. That was a process that came out of the return</p> <p>20 flight service.</p> <p>21 MR. SPENCER:</p> <p>22 Q. Okay. You described the fitting process that</p> <p>23 you developed and I believe you indicated it</p> <p>24 took six weeks or more to develop that</p> <p>25 process?</p>

Page 241

1 MR. COLLINS:  
 2 A. Approximately six weeks.  
 3 MR. SPENCER:  
 4 Q. That fitting process, did you get information  
 5 from that from people that were doing that  
 6 type of process elsewhere?  
 7 MR. COLLINS:  
 8 A. No, we did not.  
 9 MR. SPENCER:  
 10 Q. Was that process something that Helly Hansen  
 11 developed itself?  
 12 MR. COLLINS:  
 13 A. Yes, it is.  
 14 MR. SPENCER:  
 15 Q. So again, is that something that's new to the  
 16 industry?  
 17 MR. COLLINS:  
 18 A. Yes, it is.  
 19 MR. SPENCER:  
 20 Q. You were referred to the CORD testing that was  
 21 recently done and there was some discussion  
 22 about the type of testing that was done in the  
 23 pool, and how long people were in the pool and  
 24 the nature of the test. How would you compare  
 25 that type of testing that was done recently

Page 242

1 with the other tests that were done during the  
 2 normal CGSB review process?  
 3 MR. COLLINS:  
 4 A. More rigorous, that would be the first thing I  
 5 think was indicated--flip through the report,  
 6 and it was noted by CORD that the data  
 7 presenting the results that had been produced  
 8 from tests that were designed to present a  
 9 complete challenge to the waterproof integrity  
 10 of the suit system, is the opening in .6.0 and  
 11 I don't know where the exhibit is on the  
 12 computer because I had closed it out.  
 13 MR. SPENCER:  
 14 Q. That's fine.  
 15 MR. COLLINS:  
 16 A. I apologize for everybody looking at the  
 17 monitors.  
 18 MR. SPENCER:  
 19 Q. Okay.  
 20 MR. COLLINS:  
 21 A. But yeah, the test method was a complete  
 22 challenge. It also simulated a harsh marine  
 23 environment, so the suit performed well in  
 24 those conditions.  
 25 MR. SPENCER:

Page 243

1 Q. And did I understand you to say that there is  
 2 less water came in through that testing than  
 3 the previous CGSB testing?  
 4 MR. COLLINS:  
 5 A. Correct.  
 6 MR. SPENCER:  
 7 Q. Those are my questions, thank you.  
 8 COMMISSIONER:  
 9 Q. Thank you, Mr. Spencer. Mr. Collins, I don't  
 10 know if I have questions as much, there's a  
 11 couple of things that I'd like to discuss with  
 12 you.  
 13 MR. COLLINS:  
 14 A. Okay.  
 15 COMMISSIONER:  
 16 Q. If you remember Mr.--well, firstly what I'm  
 17 going to talk about is predicated on my belief  
 18 that our conditions offshore are very severe,  
 19 as severe as anywhere in terms of frigid  
 20 waters at all times of the year and very often  
 21 usually a pretty tubulate sea state, and I  
 22 think that's what we're contending with. When  
 23 you come to the issue gloves and I've seen the  
 24 gloves that are now being worked on as being  
 25 lighter perhaps and less cumbersome than the

Page 244

1 current ones, would it be possible and we  
 2 remember Mr. Decker's evidence that when he  
 3 got to the surface, his hands were virtually  
 4 useless from the cold. Now, we know that a  
 5 person really drowns in what, three or four  
 6 minutes, I suppose, so Mr. Decker, this must  
 7 have happened to Mr. Decker's hands in about a  
 8 three minute period, they were useless. Is  
 9 there any sort of material or was ever any  
 10 thought been given to a lighter glove for the  
 11 purposes of first emersion in the water while  
 12 you're trying to get out of a helicopter and  
 13 get to the surface and then put on the heavier  
 14 glove, but a lighter glove that would save  
 15 your hands for a period of three or four  
 16 minutes so that you'd have better use of them  
 17 when you actually got straightened away on the  
 18 surface?  
 19 MR. COLLINS:  
 20 A. I'm not aware of a current glove that has  
 21 passed any of the current test methods. Is it  
 22 something that we are discussing? Absolutely  
 23 as we continue to strive to improve our  
 24 products to the point that I've heard that  
 25 there are some discussions happening currently



Page 245

1 amongst members of the community in terms of  
 2 is there a way that we could develop a test  
 3 for that.  
 4 COMMISSIONER:  
 5 Q. I'm thinking of a disposable glove, almost,  
 6 that you could pull off and get the heavier  
 7 glove on, but something to save your hands in  
 8 that crucial three or four minute period?  
 9 MR. COLLINS:  
 10 A. We, as a company, have started discussions of  
 11 glove options and whether it be a two-layer  
 12 glove system, a sealed glove system, but  
 13 obviously before we would implement that  
 14 there's some work to be done in terms of  
 15 durability, dexterity to make sure that we  
 16 don't impede those other areas of egress, so  
 17 yes, those discussions are now taking place  
 18 based on information that we gather.  
 19 COMMISSIONER:  
 20 Q. The other thing that occurs to me and when you  
 21 had your figures up as to the amount of water  
 22 that gets into the suit, you know, in a half-  
 23 hour period getting in and out of the  
 24 helicopter while you're under water, partially  
 25 anyway, and then when you're lying up there's

Page 246

1 far less water gets in. I think on a quick  
 2 estimate it would be a ratio of probably five  
 3 to one, something of that order.  
 4 MR. COLLINS:  
 5 A. On a quick look, yes.  
 6 COMMISSIONER:  
 7 Q. Yeah, something like that. But of course, if  
 8 you're in the sea state which very often, I  
 9 won't say usually, but maybe usually wouldn't  
 10 be a bad word, obtains in our offshore, that  
 11 water is going to be going over you, you're  
 12 not just lying there with your face out of the  
 13 water. The water is going to be going over  
 14 you, this is one of the problems Mr. Decker  
 15 encountered and it wasn't a very stormy day by  
 16 North Atlantic standards when he was out  
 17 there, so that in that sort of sea state,  
 18 there would be a lot more water getting  
 19 through the seal than in the test where the  
 20 person is just lying face out of the water, if  
 21 you know what I mean.  
 22 MR. COLLINS:  
 23 A. Yeah, you're suggesting that there would be  
 24 more face emersions -  
 25 COMMISSIONER:

Page 247

1 Q. Yes.  
 2 MR. COLLINS:  
 3 A. - or breaking waves coming over the person.  
 4 COMMISSIONER:  
 5 Q. Yes, exactly because that's the way it is out  
 6 there.  
 7 MR. COLLINS:  
 8 A. And I was not there to observe the test day at  
 9 the survival systems pool. From my experience  
 10 having been in that simulator with it turned  
 11 on to the max, that pool will simulate face  
 12 emersions, so I look forward to personally  
 13 seeing the test on the 27th and maybe that's  
 14 something that could be studied in terms of  
 15 the number of face emersions as part of the  
 16 testing on the 27th to see if there's a  
 17 relationship with the water ingress at that  
 18 point.  
 19 COMMISSIONER:  
 20 Q. Conditions that you might expect offshore.  
 21 MR. COLLINS:  
 22 A. Correct, and the conditions that that testing  
 23 was done in the CORD report, quickly just go  
 24 over it, summary, introduction, I just want to  
 25 just go through the test method really

Page 248

1 quickly. So the environmental conditions used  
 2 were moderate to gusty winds, 30 to 70  
 3 kilometers an hour, so that was in the  
 4 simulator; waves of half to three-quarters of  
 5 a meter random and confused, so waves were  
 6 obviously coming at people from every angle;  
 7 rain continuous and heavy; sound, ocean sounds  
 8 and lights delayed, dim and you know, in that  
 9 simulator they do have rain and wind which  
 10 would have been part of the CORD testing and  
 11 the water ingress amounts, all those features  
 12 of the simulator would have been on during the  
 13 testing. So I'm sure during that testing that  
 14 they were getting a significant amount of  
 15 water splashed in their face.  
 16 COMMISSIONER:  
 17 Q. Yeah, it would seem like it, yes. Now in  
 18 terms of time, there's been no evidence on  
 19 this, but I'm told that when the crash  
 20 occurred on the 12th of March past, Mr.  
 21 Decker, to take him as the example, the one  
 22 survivor, was out there for just over an hour  
 23 before rescue got to him because I'm told and  
 24 there will be evidence I'm sure on this, that  
 25 the re-configuration of the helicopter to put

Page 249

1 the hoist in, here in St. John's, and get it  
 2 ready to go was about 40 minutes and that the  
 3 trip out was something or the order of 22, 23  
 4 minutes, so there's an hour and possibly a  
 5 little more. Do you think--and this really is  
 6 my question, although I promised not to ask  
 7 any questions, but my question is do you feel  
 8 comfortable that a person could float about in  
 9 these conditions out there for an hour or more  
 10 and be core body temperature at least, you  
 11 know, up around 29, 30 degrees or not lower,  
 12 do you have confidence that that would be the  
 13 case?  
 14 MR. COLLINS:  
 15 A. From the information that we have from experts  
 16 in thermal performance of suits, the answer is  
 17 yes.  
 18 COMMISSIONER:  
 19 Q. Yes.  
 20 MR. COLLINS:  
 21 A. That is a possibility.  
 22 COMMISSIONER:  
 23 Q. Okay. On the fitting of the suits and I guess  
 24 what Mr. Roil described this morning as an end  
 25 user, you are talking to one now -

Page 250

1 MR. COLLINS:  
 2 A. Yes.  
 3 COMMISSIONER:  
 4 Q. But anyway, what I found with the suits is in  
 5 the training they sort of looked at me and  
 6 said you should take a medium. It turned out  
 7 that the suit was really too small but I  
 8 carried on with it anyway, but when I went to  
 9 go offshore, I said "I need a large suit" and  
 10 they gave me a large suit and I forget now the  
 11 detail, but the man, the young man who was  
 12 fitting it, as it were, felt no, that's not  
 13 right for you, but he said, "I'll try another  
 14 large suit for you, I'm going to try that one  
 15 over there." And he got it and that fitted  
 16 very well, so there was a difference and  
 17 you've mentioned that there could be small  
 18 differences, but there was sufficient  
 19 difference in the size large suit that I was  
 20 reasonably comfortable in the second suit and  
 21 in fact, wore it offshore. Now, I didn't  
 22 expect a suit like that to be comfortable, but  
 23 bearable because you're in it for an hour and  
 24 a half and then it comes off again, but you  
 25 wouldn't expect the degree of comfort you

Page 251

1 would find in your normal clothes, but again,  
 2 you're not doing anything on the helicopter  
 3 except sitting there. So I didn't see comfort  
 4 as being a huge issue. Now maybe to some  
 5 people it is a greater issue. My concern was  
 6 that if anything happened, I could survive in  
 7 the suit. So this leads me to the proposition  
 8 that if even in the large size I had to have a  
 9 second fitting, and I think Mr. Earle or  
 10 possibly Ms. O'Brien raised this, would it not  
 11 be better if one did have a suit that you  
 12 could say, well that's the suit, certainly if  
 13 it's available that I would like to go in. I  
 14 think you mentioned earlier that some people  
 15 have their names on a suit?  
 16 MR. COLLINS:  
 17 A. That is only in Nova Scotia at this point and  
 18 that's the intervention crew.  
 19 COMMISSIONER:  
 20 Q. I see, I see. Because to simply say "large"  
 21 it seems to me it may not be adequate, but a  
 22 large that happened to fit the idiosyncrasies  
 23 of one person physically, whatever they may  
 24 be, would be a better bet in terms of safety  
 25 just ignoring comfort altogether, for the

Page 252

1 moment. Now I know there's a cost issue  
 2 there.  
 3 MR. COLLINS:  
 4 A. Well I think your question and comment is  
 5 similar to the question that Mr. Earle had in  
 6 terms of the time involved so everybody would  
 7 have their own suit assigned. What I will say  
 8 is even the personnel in Nova Scotia who have  
 9 their name on a suit, where that suit is a  
 10 standard suit, it is still available for use  
 11 by other passengers and the passengers that  
 12 have flown in, traditionally they've used  
 13 always the same suit, they have flown in other  
 14 size suits of the same size. Obviously when,  
 15 you know, the operation in Nova Scotia ramped  
 16 up this summer, more suits were required to be  
 17 part of the regular rotation of suits. So  
 18 it's not--those suits are -  
 19 COMMISSIONER:  
 20 Q. Not exclusive.  
 21 MR. COLLINS:  
 22 A. It's not exclusive.  
 23 COMMISSIONER:  
 24 Q. No, I see, I understand. The other thing, I  
 25 think the boots--the boots I gather were

Page 253

1 specified by the operators.  
 2 MR. COLLINS:  
 3 A. That they had to have a boot, not the specific  
 4 boot.  
 5 COMMISSIONER:  
 6 Q. Yes, I see, you had to have a boot with a  
 7 thick sole and--I'll tell you what I'm getting  
 8 at, the boots seemed awfully cumbersome to me.  
 9 MR. COLLINS:  
 10 A. I guess in terms of the comment back, that  
 11 boot is actually used on shore as well and is  
 12 probably the most used boot in the on shore  
 13 oil and gas business and it is also the same  
 14 boot that our other Canadian competitor used  
 15 on their suit -  
 16 COMMISSIONER:  
 17 Q. I see.  
 18 MR. COLLINS:  
 19 A. - because you have to meet a minimum thermal  
 20 performance and the boot without any liners,  
 21 which the E352, the foam liner of the suit  
 22 actually used to have to go down into the boot  
 23 so that it would offer enough thermal  
 24 protection to the feet, and then the comments  
 25 that we were getting there is people found

Page 254

1 them uncomfortably tight because you had  
 2 essentially an extra layer inside the boot.  
 3 COMMISSIONER:  
 4 Q. I see.  
 5 MR. COLLINS:  
 6 A. So this boot stock, in terms of no additional  
 7 liners, will give to minus 40 protection and  
 8 aid in the overall thermal performance of the  
 9 suit.  
 10 COMMISSIONER:  
 11 Q. So size is related to thermal protection  
 12 because of the liner.  
 13 MR. COLLINS:  
 14 A. On the E352 it was because E352 had a  
 15 different boot on it, but the boot was not  
 16 self insulating, while this suit is self  
 17 insulating, so by not having additional  
 18 material into the boot which makes it harder  
 19 to don, we were still able to offer a high  
 20 level of foot protection in terms of thermal  
 21 against the elements.  
 22 COMMISSIONER:  
 23 Q. I see.  
 24 MR. COLLINS:  
 25 A. And survival conditions.

Page 255

1 COMMISSIONER:  
 2 Q. Okay, that's all I have to talk about really,  
 3 thank you very much.  
 4 MR. COLLINS:  
 5 A. Thank you.  
 6 COMMISSIONER:  
 7 Q. Okay then, nothing else is there, Mr. Roil,  
 8 this afternoon?  
 9 ROIL, Q.C.:  
 10 Q. No Commissioner, no additional evidence for  
 11 tomorrow at this point in time. Our next  
 12 witnesses will be on Monday with the Memorial  
 13 University Marine Institute Survival Centre  
 14 and Ms. Fagan will lead the evidence on that  
 15 particular -  
 16 COMMISSIONER:  
 17 Q. All right then, well we'll adjourn until 9:30  
 18 this coming Monday.

Page 256

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 18th day of November, 2009 at  
 5 Tara 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 18th day of November, 2009  
 11 Cindy Sooley  
 12 Discoveries Unlimited Inc.  
 13 Judy Moss  
 14 Discoveries Unlimited Inc.

<p><b>-#-</b></p> <p>#16 [1] 93:4 #75 [1] 51:14 #76 [1] 53:25 #77 [2] 79:9,14 #78 [1] 90:2 #81 [2] 93:6 97:13 #90 [1] 117:8</p>	<p>181:8,10,23 185:1 12th [7] 110:6 127:14 128:3 132:3 149:16 162:16 248:20 13 [4] 143:4 157:5 204:14 204:14 1340 [2] 49:13,14 1350 [1] 49:16 14 [3] 111:21 197:17 204:14 140 [1] 64:16 15 [2] 154:11 184:7 150 [2] 45:19 91:7 150/160 [1] 56:18 16 [1] 70:25 18 [1] 1:1 180 [11] 139:8,12,14,14 140:4 142:19 196:19 221:4,9 223:2 238:17 18th [5] 28:20 34:3 123:11 256:4,10 19 [1] 29:23 1988 [2] 27:21 172:19 1993 [1] 12:7 1998 [1] 15:20 1999 [1] 15:20 1st [2] 81:7,9</p>	<p>28 [2] 125:11 151:18 28th [1] 115:17 29 [1] 249:11 2nd [1] 124:11 2XL [2] 92:6 105:6</p> <p><b>-3-</b></p> <p>3 [4] 97:16 214:7 231:23 232:3 3,000 [1] 140:9 3.1.0 [1] 69:6 3.1.4 [1] 202:9 3.1.5 [1] 202:10 3.1.0 [1] 185:21 3.3 [3] 59:10,14,15 3.4 [1] 62:23 3.4.2 [1] 62:24 3.5 [1] 64:7 3.5.2 [1] 61:2 3.6 [1] 64:25 3.7 [1] 160:4 3.8 [3] 65:14 180:25 234:15 3.9 [3] 66:10 178:25 232:4 3.9.2 [1] 179:11 3.9.4 [2] 66:19 232:11 30 [5] 118:21 135:20 198:21 248:2 249:11 300 [1] 238:22 3000 [3] 59:7 238:8,10 31 [3] 28:21 110:25 256:5 32 [1] 214:12 33.9 [1] 45:19 35 [3] 183:20 184:2,3 35.2 [1] 22:19 61:10,22 77:13 170:6,9,15,16,20 174:2 179:14 352B [2] 173:11 174:1 399 [1] 20:20 3rd [1] 116:12 3XL [6] 91:11,18 92:4,6 92:10 111:2</p>	<p>175:3,6 176:11 491 [1] 128:5</p> <p><b>-5-</b></p> <p>50 [2] 32:15 229:6 500 [1] 84:11 537 [1] 172:15 5th [1] 125:18</p> <p><b>-6-</b></p> <p>6 [4] 157:7 158:21 159:6 159:16 6' [1] 151:8 60 [2] 158:23 159:22 61 [3] 153:19,25 154:6 65 [4] 1:20 2:6,10 145:7 65.16-2005 [1] 34:21 65.17-99 [1] 34:23 65.17-M88 [1] 172:19 67 [1] 17:3 68 [1] 19:18 69 [3] 171:3,11,13 6th [1] 127:10</p> <p><b>-7-</b></p> <p>7 [7] 142:4 157:8,8 184:7 198:1 204:6 212:4 70 [4] 25:25 47:11 52:9 248:2 71 [1] 27:25 73 [1] 34:25 74 [1] 34:25 76 [2] 178:16 231:19 77 [2] 79:10,24 78 [3] 79:10 84:19 202:7 79 [2] 79:10 84:19</p> <p><b>-8-</b></p> <p>8 [8] 120:16 198:1,7,25 199:4 200:2 204:7 214:13 80 [3] 10:8 79:11 84:19 82 [1] 183:5 83 [1] 182:25 830 [1] 140:13 87 [1] 204:9 89 [4] 100:3 101:7,9 121:22</p>	<p>9th [1] 178:20</p> <p><b>-A-</b></p> <p>abandoning [1] 46:20 abandonment [9] 13:22 47:24 94:5 151:4 228:8 228:16,17 229:7 230:16 ability [8] 44:21 64:25 69:12 136:21 186:12 199:23 236:24 256:7 able [23] 5:23 19:4 41:11 63:18,19 65:7 69:15 77:4 96:25 110:23 117:20 120:15 122:12,23 152:25 170:25 197:13,16 198:19 199:15 219:1 234:25 254:19 above [3] 44:14 95:7 190:5 Absolutely [3] 93:18 203:25 244:22 accepted [1] 27:19 access [5] 16:23 59:2 131:14,20 153:21 accident [3] 127:11 142:8 205:15 accommodate [3] 92:10 174:3 176:11 accommodations [1] 112:20 account [1] 216:4 accurate [1] 229:19 achieved [1] 157:15 achieving [1] 165:14 acquisition [1] 30:2 ACR [1] 181:25 acted [1] 137:2 action [6] 111:17 115:17 117:22 122:19 180:7 205:23 actions [2] 113:18 159:11 activate [1] 182:9 activated [4] 66:6 95:12 96:2 182:5 activation [3] 95:8 96:5 181:15 activity [3] 204:18,20 206:8 acts [1] 34:11 actual [13] 5:18 20:14 23:1 39:2 41:16 55:15 103:24 108:15 129:20 161:16 216:9 230:6 233:5 adaptability [1] 173:14 add [2] 143:2 223:13 added [4] 82:12 92:6 136:7 223:10 adding [2] 78:4 186:21 addition [4] 84:9 91:18 162:13 172:20 additional [24] 63:4,20 64:5 65:10 74:16,17,24 75:6 94:19 106:5,13 107:17,19 109:4 111:16</p>
<p><b>-\$-</b></p> <p>\$3,500.00 [1] 82:9 \$4,000.00 [1] 82:10</p> <p><b>-&amp;-</b></p> <p>&amp; [3] 29:23 133:10,11</p> <p><b>-'-</b></p> <p>'05 [1] 175:25 '06 [3] 28:18 31:8 175:25 '07 [2] 109:23 206:5 '09 [1] 110:2 '93 [1] 29:6 '99 [3] 16:20 27:22,23</p>	<p><b>-2-</b></p> <p>2 [6] 16:24 91:11,18 105:6 111:1 202:9 2.2 [1] 55:18 2.5 [1] 121:7 20 [3] 159:22 212:11,21 20/20 [1] 162:15 2005 [3] 174:10,12 176:19 2006 [9] 8:6 28:20 53:3 53:22 79:7 174:10,16 178:20 231:19 2007 [8] 29:9 53:4 54:22 80:21 81:18 85:19,20 110:19 2008 [10] 111:22 114:20 115:17 116:12 123:5,11 124:12 125:11,19 143:23 2009 [7] 1:1 127:10,14 132:3 203:18 256:4,10 2011 [2] 28:21 29:1 213 [1] 256:5 22 [2] 198:17 249:3 225 [1] 117:17 23 [2] 197:24 249:3 23rd [3] 54:22 80:21 81:9 25 [5] 31:13 32:18 142:25 143:4 223:8 25-millimetre [1] 40:25 25/30 [1] 223:5 250 [2] 64:16 91:7 26th [1] 111:22 27 [1] 7:22 27th [2] 247:13,16</p>	<p><b>-3-</b></p> <p>3 [4] 97:16 214:7 231:23 232:3 3,000 [1] 140:9 3.1.0 [1] 69:6 3.1.4 [1] 202:9 3.1.5 [1] 202:10 3.1.0 [1] 185:21 3.3 [3] 59:10,14,15 3.4 [1] 62:23 3.4.2 [1] 62:24 3.5 [1] 64:7 3.5.2 [1] 61:2 3.6 [1] 64:25 3.7 [1] 160:4 3.8 [3] 65:14 180:25 234:15 3.9 [3] 66:10 178:25 232:4 3.9.2 [1] 179:11 3.9.4 [2] 66:19 232:11 30 [5] 118:21 135:20 198:21 248:2 249:11 300 [1] 238:22 3000 [3] 59:7 238:8,10 31 [3] 28:21 110:25 256:5 32 [1] 214:12 33.9 [1] 45:19 35 [3] 183:20 184:2,3 35.2 [1] 22:19 61:10,22 77:13 170:6,9,15,16,20 174:2 179:14 352B [2] 173:11 174:1 399 [1] 20:20 3rd [1] 116:12 3XL [6] 91:11,18 92:4,6 92:10 111:2</p> <p><b>-4-</b></p> <p>4 [2] 71:4 202:9 4' [2] 151:7,11 4-94 [1] 20:10 4.1.2 [1] 189:8 4.4 [1] 90:4 40 [9] 66:19 96:18 142:22 145:6 219:5,6 232:12 249:2 254:7 400 [2] 49:13 90:18 406 [4] 181:6 182:1 184:12 185:5 425 [1] 64:15 452 [16] 21:24 60:20 77:13,19 78:20 116:16 128:14 144:7 155:24 170:14 172:1,22 174:23</p>	<p>175:3,6 176:11 491 [1] 128:5</p> <p><b>-5-</b></p> <p>50 [2] 32:15 229:6 500 [1] 84:11 537 [1] 172:15 5th [1] 125:18</p> <p><b>-6-</b></p> <p>6 [4] 157:7 158:21 159:6 159:16 6' [1] 151:8 60 [2] 158:23 159:22 61 [3] 153:19,25 154:6 65 [4] 1:20 2:6,10 145:7 65.16-2005 [1] 34:21 65.17-99 [1] 34:23 65.17-M88 [1] 172:19 67 [1] 17:3 68 [1] 19:18 69 [3] 171:3,11,13 6th [1] 127:10</p> <p><b>-7-</b></p> <p>7 [7] 142:4 157:8,8 184:7 198:1 204:6 212:4 70 [4] 25:25 47:11 52:9 248:2 71 [1] 27:25 73 [1] 34:25 74 [1] 34:25 76 [2] 178:16 231:19 77 [2] 79:10,24 78 [3] 79:10 84:19 202:7 79 [2] 79:10 84:19</p> <p><b>-8-</b></p> <p>8 [8] 120:16 198:1,7,25 199:4 200:2 204:7 214:13 80 [3] 10:8 79:11 84:19 82 [1] 183:5 83 [1] 182:25 830 [1] 140:13 87 [1] 204:9 89 [4] 100:3 101:7,9 121:22</p>	<p>9th [1] 178:20</p> <p><b>-A-</b></p> <p>abandoning [1] 46:20 abandonment [9] 13:22 47:24 94:5 151:4 228:8 228:16,17 229:7 230:16 ability [8] 44:21 64:25 69:12 136:21 186:12 199:23 236:24 256:7 able [23] 5:23 19:4 41:11 63:18,19 65:7 69:15 77:4 96:25 110:23 117:20 120:15 122:12,23 152:25 170:25 197:13,16 198:19 199:15 219:1 234:25 254:19 above [3] 44:14 95:7 190:5 Absolutely [3] 93:18 203:25 244:22 accepted [1] 27:19 access [5] 16:23 59:2 131:14,20 153:21 accident [3] 127:11 142:8 205:15 accommodate [3] 92:10 174:3 176:11 accommodations [1] 112:20 account [1] 216:4 accurate [1] 229:19 achieved [1] 157:15 achieving [1] 165:14 acquisition [1] 30:2 ACR [1] 181:25 acted [1] 137:2 action [6] 111:17 115:17 117:22 122:19 180:7 205:23 actions [2] 113:18 159:11 activate [1] 182:9 activated [4] 66:6 95:12 96:2 182:5 activation [3] 95:8 96:5 181:15 activity [3] 204:18,20 206:8 acts [1] 34:11 actual [13] 5:18 20:14 23:1 39:2 41:16 55:15 103:24 108:15 129:20 161:16 216:9 230:6 233:5 adaptability [1] 173:14 add [2] 143:2 223:13 added [4] 82:12 92:6 136:7 223:10 adding [2] 78:4 186:21 addition [4] 84:9 91:18 162:13 172:20 additional [24] 63:4,20 64:5 65:10 74:16,17,24 75:6 94:19 106:5,13 107:17,19 109:4 111:16</p>

141:9 145:1 158:10 161:21 186:16 217:25 254:6,17 255:10 <b>address</b> [3] 46:7 125:14 206:20 <b>addressed</b> [3] 192:11 196:12 203:3 <b>addressing</b> [1] 121:9 <b>adequate</b> [1] 251:21 <b>adjourn</b> [1] 255:17 <b>adjust</b> [5] 144:22 147:10 147:14,22,23 <b>adjustable</b> [2] 96:11 144:21 <b>adjuster</b> [1] 148:24 <b>adjustment</b> [1] 231:10 <b>admin</b> [7] 67:7,25 68:7 68:10,10,12 69:1 <b>Administration</b> [1] 51:16 <b>administrative</b> [2] 80:17 98:5 <b>admitted</b> [2] 1:25 2:3 <b>advances</b> [1] 165:12 <b>advisor</b> [1] 224:23 <b>aeronautical</b> [5] 4:16 19:16 20:21,25 171:15 <b>affect</b> [4] 44:20 64:2,3 187:8 <b>afternoon</b> [4] 154:11 225:12,14 255:8 <b>afterwards</b> [1] 137:12 <b>again</b> [20] 13:25 14:19 28:16 32:13 37:12 39:4 41:1 51:6,19 69:18 72:4 75:16 107:24 125:4 126:22 131:15 148:25 241:15 250:24 251:1 <b>against</b> [5] 50:10 56:21 108:24 156:18 254:21 <b>agency</b> [1] 52:17 <b>agree</b> [3] 195:17 197:15 198:6 <b>agreed</b> [17] 49:24 81:13 120:15,15,17,17,24,24 120:24 121:8,9,20,21,23 121:23,25 122:1 <b>agreeing</b> [1] 120:25 <b>agreement</b> [3] 49:5 141:2,3 <b>ahead</b> [1] 24:20 <b>aid</b> [2] 231:4 254:8 <b>air</b> [11] 47:19,21 88:5,6 93:20,23 94:8,10,12 106:20 116:5 <b>aircraft</b> [5] 44:25 45:8 181:13 183:19 228:12 <b>airplane</b> [2] 45:4 52:1 <b>Airport</b> [2] 18:14 140:14 <b>airworthiness</b> [3] 26:2 52:8 172:15 <b>airworthy</b> [1] 107:20 <b>Alert</b> [1] 182:22 <b>allow</b> [13] 20:24 47:21	63:9,12 67:15 76:25 93:23 105:14 115:24 116:2 136:19 144:22 231:11 <b>allowances</b> [1] 164:2 <b>allowed</b> [9] 57:20 63:17 129:19 138:22 155:13 173:6 188:9 201:10 217:21 <b>allows</b> [8] 7:25 47:18 93:21 105:16 108:3 147:10,21 179:22 <b>almost</b> [2] 220:25 245:5 <b>alone</b> [3] 116:10 140:13 204:13 <b>alternate</b> [3] 125:17,17 211:25 <b>alternative</b> [2] 129:2 138:11 <b>altitude</b> [1] 183:21 <b>altogether</b> [1] 251:25 <b>always</b> [7] 93:11 94:9 105:12 115:25 207:23 231:5 252:13 <b>amended</b> [2] 141:17 190:19 <b>amendment</b> [3] 128:11 174:19 203:14 <b>amendments</b> [5] 36:24 85:11 145:22 146:2,23 <b>American</b> [2] 7:8 52:16 <b>AMO</b> [2] 99:14,15 <b>amongst</b> [3] 58:10 98:15 245:1 <b>amount</b> [11] 25:17 56:21 67:14 83:20 108:17 201:14 215:16 220:13 233:6 245:21 248:14 <b>amounts</b> [3] 87:6 151:21 248:11 <b>angle</b> [1] 248:6 <b>annual</b> [2] 18:12 25:10 <b>annually</b> [1] 18:9 <b>answer</b> [7] 50:19 128:25 167:18 175:16 215:13 229:19 249:16 <b>answers</b> [2] 161:9 204:13 <b>antenna</b> [2] 75:19 182:6 <b>anticipate</b> [3] 59:1 70:9 223:2 <b>anticipated</b> [3] 126:8 177:3 234:17 <b>anticipating</b> [1] 176:20 <b>anyway</b> [4] 152:19 245:25 250:4,8 <b>AP-22</b> [3] 22:15 170:24 171:13 <b>apologize</b> [1] 242:16 <b>apparatus</b> [4] 66:23 179:7 232:10 256:8 <b>appear</b> [3] 84:20 153:23 207:4 <b>appendices</b> [1] 204:3 <b>Appendix</b> [1] 204:6	<b>application</b> [3] 46:19 148:17 151:13 <b>applications</b> [2] 46:22 51:24 <b>apply</b> [1] 38:13 <b>applying</b> [1] 31:15 <b>Appreciate</b> [1] 114:25 <b>appreciating</b> [1] 233:8 <b>appropriately</b> [1] 121:3 <b>approval</b> [46] 20:22 22:15 23:3,19 27:25 28:8 52:8 60:24 63:8 65:10 69:20,20,24 70:3 120:9 120:11 126:6,19,19 129:3 141:7 144:2 149:9 171:14 172:10 174:23 175:2,7,9 175:10,13 178:21 179:12 179:16,19 186:17 187:3 187:12 188:5 218:12 220:18 222:5 223:14 226:16 227:3 230:24 <b>approvals</b> [11] 23:10 26:9 28:4,13 59:21 60:3 187:19,22 188:1,3 218:8 <b>approve</b> [4] 21:22 24:4 24:6 144:19 <b>approved</b> [46] 15:17 19:16,20,24 20:23 21:18 22:25 23:14 28:12 46:8 50:12 55:12 60:5,13,18 66:14 70:6 71:11 72:19 99:16,20 107:10 119:12 119:16 129:12 140:23 141:10 144:9 148:8 150:17 172:18,21,23,25 173:2 175:4,20 187:13 188:13,17,24 189:1,3 220:25 228:10 229:25 <b>approving</b> [1] 52:10 <b>April</b> [7] 54:22 80:21 81:8,18 127:10 132:24 186:20 <b>area</b> [12] 74:15 94:14 96:14 124:20 125:1 128:24 136:6 160:21,25 161:23 162:12 163:21 <b>areas</b> [5] 17:8 39:10 51:9 167:6 245:16 <b>arise</b> [1] 193:13 <b>arising</b> [6] 5:4 110:9,20 192:5,10 205:23 <b>arm</b> [2] 143:14 166:2 <b>armed</b> [3] 95:3 96:3,4 <b>arms</b> [3] 69:17 70:19 136:19 <b>arose</b> [2] 111:1 192:13 <b>arrangement</b> [1] 156:21 <b>array</b> [3] 30:4 41:14 46:22 <b>arrive</b> [2] 58:21 68:13 <b>aside</b> [2] 13:6 113:24 <b>aspect</b> [2] 27:16 67:20 <b>aspects</b> [3] 45:24 206:17 230:4 <b>assess</b> [1] 207:1 <b>assessed</b> [1] 161:10	<b>assessment</b> [1] 34:7 <b>asset</b> [1] 147:19 <b>assigned</b> [6] 66:23 67:13 89:6 106:3 220:10 252:7 <b>assignment</b> [2] 153:13 165:9 <b>assist</b> [5] 88:24 89:15 162:7 165:8,14 <b>association</b> [1] 129:15 <b>assume</b> [2] 160:17 217:3 <b>assumed</b> [1] 194:18 <b>assumes</b> [1] 213:19 <b>astronauts</b> [1] 30:6 <b>Atlantic</b> [2] 215:23 246:16 <b>attach</b> [1] 39:13 <b>attached</b> [4] 67:3,4 74:19 102:25 <b>attaches</b> [1] 147:7 <b>attachments</b> [1] 102:5 <b>attain</b> [1] 16:22 <b>attained</b> [1] 159:24 <b>attempt</b> [1] 160:18 <b>attempts</b> [1] 15:9 <b>attention</b> [3] 130:3 134:2 210:5 <b>audio</b> [1] 74:5 <b>audit</b> [14] 16:4 17:25 18:2,7,12,17,23,24 25:7 25:14 101:18 205:4 206:3 206:13 <b>audited</b> [1] 15:24 <b>audits</b> [10] 16:3 17:20 18:10,13 25:11,14 205:21 205:24 206:5,7 <b>authorities</b> [1] 52:20 <b>authorized</b> [1] 7:18 <b>automatic</b> [4] 94:2 95:7 97:3,3 <b>automatically</b> [1] 95:9 <b>availability</b> [1] 220:20 <b>available</b> [18] 5:16 21:23 33:6,11 35:3 43:11 48:19 90:19 111:4 120:3 138:12 216:7 222:4 229:8 230:15 238:20 251:13 252:10 <b>average</b> [4] 64:16 91:6,6 112:23 <b>aviation</b> [25] 20:8 22:16 23:24 25:24 26:11 28:4 28:13 48:10,17 49:15,25 51:15,24 52:10 59:18 72:19 126:6 144:10 150:2 172:2,10 173:6 176:21 176:22 218:12 <b>award</b> [3] 29:9 79:25 80:9 <b>aware</b> [21] 13:20 33:16 35:10 37:14,15 78:25 81:18 110:15,22 146:24 165:13 180:18 193:20 194:6,10 203:6 206:23 216:6,22 218:2 244:20 <b>away</b> [11] 41:6 73:25	75:5 83:23 89:12 126:16 126:16 184:2,3 195:2 244:17 <b>awfully</b> [1] 253:8 <hr/> <b>-B-</b> <hr/> <b>b</b> [5] 16:2 66:13 78:15 98:25 136:11 <b>backed</b> [1] 207:24 <b>background</b> [3] 2:22 3:2 51:12 <b>bad</b> [1] 246:10 <b>badge</b> [1] 234:8 <b>bag</b> [1] 208:24 <b>balances</b> [1] 14:10 <b>Bank</b> [1] 29:10 <b>Banks</b> [3] 54:5 56:3 87:11 <b>bar</b> [5] 102:9 104:5,11 104:15 105:14 <b>Barnes</b> [4] 146:23 166:17 217:11 219:12 <b>bars</b> [1] 166:3 <b>base</b> [1] 112:5 <b>based</b> [29] 6:7 9:5 10:11 10:12,14 11:17 18:10 20:7 23:14 24:17 30:22 41:1 42:8,19 57:23 58:12 59:5 90:13 91:5 120:19 129:13 133:12 135:20 147:21 162:24 170:16 223:7 224:21 245:18 <b>basis</b> [5] 21:24 172:13 204:17 207:16 227:10 <b>bat</b> [1] 239:17 <b>BC</b> [2] 30:22 133:13 <b>beacon</b> [6] 95:2,2 183:9 183:14 184:19,21 <b>beacons</b> [8] 65:15,16 66:5 75:11 180:25 184:16 184:17 234:14 <b>bear</b> [2] 79:22 138:25 <b>bearable</b> [1] 250:23 <b>Beaufort</b> [2] 180:2,4 <b>became</b> [3] 110:15,22 237:22 <b>become</b> [6] 13:8 52:15 102:22 103:5 107:8 150:21 <b>becomes</b> [2] 222:21,22 <b>beforehand</b> [1] 176:2 <b>beginning</b> [1] 215:4 <b>behalf</b> [2] 4:4 80:6 <b>behind</b> [5] 27:4 74:10 94:20 131:24 176:10 <b>belief</b> [1] 243:17 <b>below</b> [7] 6:25 55:18 95:1 96:7,8 113:23 115:13 <b>bend</b> [1] 62:20 <b>benefits</b> [1] 145:4 <b>beside</b> [2] 95:12 105:25 <b>best</b> [6] 36:20 93:12 171:14 178:11 207:19
--	---	---	---	--

<p>256:7 <b>bet</b> [1] 251:24 <b>better</b> [12] 75:3 77:5 144:22 150:4 154:3 200:22 228:4 231:4 236:17 244:16 251:11,24 <b>between</b> [13] 15:20 29:1 49:13 61:8 64:16 77:13 82:9 97:23 98:13 149:25 173:10 181:5 222:9 <b>bid</b> [21] 57:1,9 60:2,4,21 60:23 64:11 65:5,8 72:10 74:18 75:25 76:12 80:4 83:19,21,25 85:13 91:4 180:15 226:1 <b>bidder</b> [10] 54:23 69:6 71:5 72:18 80:1 81:19 84:24 186:1 189:12 190:2 <b>bidders</b> [4] 60:16 64:10 64:25 73:1 <b>bidding</b> [2] 56:21 78:24 <b>big</b> [2] 134:8 163:18 <b>bigger</b> [3] 92:12 219:23 221:17 <b>biggest</b> [1] 179:18 <b>billings</b> [1] 98:4 <b>bit</b> [10] 3:10 6:4 14:23 15:5 41:23 59:12 122:17 169:6 171:25 210:12 <b>bladder</b> [4] 106:15 123:12,17,24 <b>bladders</b> [1] 124:4 <b>blame</b> [1] 42:5 <b>blank</b> [1] 81:4 <b>blocks</b> [1] 54:4 <b>blood</b> [1] 42:5 <b>blow</b> [1] 94:24 <b>blueprint</b> [1] 39:5 <b>board</b> [15] 4:19,22 34:4 41:11 56:15 112:7,8 125:12 130:20 172:16 188:9,12 228:8 229:2,6 <b>Board's</b> [1] 24:13 <b>boarding</b> [2] 158:9 212:12 <b>boat</b> [3] 3:23 46:21,21 <b>boats</b> [1] 181:13 <b>body</b> [11] 135:21 151:17 165:24 195:12 196:4 210:11 215:21,23 216:3 220:22 249:10 <b>bolt</b> [1] 102:11 <b>bolts</b> [1] 176:3 <b>boom</b> [1] 227:22 <b>boot</b> [31] 62:16,17 63:10 63:13,25 70:17,23 71:1 111:4,19,21 114:14,15 114:16 122:7 147:13 162:12 192:17 253:3,4,6 253:11,12,14,20,22 254:2 254:6,15,15,18 <b>boots</b> [22] 17:6 43:12 62:7,24,25 63:19 65:1,7 93:11 96:17 102:6 121:17 121:18,19,19,22,24 147:8</p>	<p>202:13 252:25,25 253:8 <b>bottle</b> [2] 179:23,24 <b>bottles</b> [8] 67:24,24 68:1 68:3,4 71:17 87:18 189:16 <b>bottom</b> [7] 17:11 28:17 62:8,21 72:14,17 159:15 <b>bound</b> [3] 112:24 116:14 116:14 <b>brand</b> [6] 8:2,4,5,14,17 8:21 <b>brands</b> [1] 8:8 <b>break</b> [13] 74:3 76:18,20 76:23 154:4,8,10,17,23 154:25 166:4 211:14 218:14 <b>breakdown</b> [1] 233:7 <b>breaking</b> [2] 132:1 247:3 <b>breaks</b> [1] 214:8 <b>breath</b> [1] 87:1 <b>breathing</b> [16] 61:14 66:12,23,25 67:2,4,7 75:5 77:15 88:2,14 100:19,21 179:5,6 232:10 <b>Brian</b> [1] 31:12 <b>brief</b> [1] 15:8 <b>briefing</b> [1] 45:5 <b>briefly</b> [1] 110:21 <b>bright</b> [2] 43:23 61:23 <b>bring</b> [12] 2:12 3:9 33:5 34:16 53:23 101:10 117:8 153:25 154:4 180:3 183:4 221:23 <b>brings</b> [1] 32:22 <b>broader</b> [2] 34:15 38:23 <b>broke</b> [2] 123:13,14 <b>broken</b> [2] 6:8 39:9 <b>brought</b> [5] 5:9 17:24 25:25 35:1 134:2 <b>buddy</b> [6] 49:6,6,7,13 96:16 102:14 <b>build</b> [8] 7:25 10:19 25:19 28:25 42:18,23 54:15 119:15 <b>built</b> [7] 26:22 27:2,8 42:10 51:5 52:13 163:19 <b>bulk</b> [8] 130:5 131:19 162:10,12 163:1 169:19 195:5 214:14 <b>bulkiness</b> [3] 113:16 192:17 194:22 <b>bulky</b> [1] 194:18 <b>bulletin</b> [2] 115:18 116:9 <b>bunk</b> [1] 112:15 <b>Buoy-O-Boy</b> [2] 8:5,19 <b>buoyancy</b> [23] 44:10,11 44:13,16,20 45:9,13,17 45:19,21,23 47:3,9,9,23 48:25 64:2 94:13 96:20 150:1,20 230:10,11 <b>buoyant</b> [4] 44:17,23 45:10 47:10 <b>burp</b> [2] 94:2,7 <b>burping</b> [1] 94:1</p>	<p><b>business</b> [9] 3:16,23 16:3 17:9 54:15 132:5 153:17 206:18 253:13 <b>button</b> [3] 95:10 182:6,8 <b>buy</b> [1] 163:14 <b>buying</b> [1] 195:16</p> <hr/> <p style="text-align: center;"><b>-C-</b></p> <hr/> <p><b>c</b> [3] 136:13 173:11 174:1 <b>C-NLOPB</b> [1] 137:2 <b>C-NSOPB</b> [1] 125:11 <b>C13F</b> [1] 26:9 <b>calendar</b> [1] 143:25 <b>calf</b> [2] 70:16,18 <b>calls</b> [4] 47:8 49:11,12 65:14 <b>calm</b> [1] 158:24 <b>camera</b> [4] 5:23 77:3 93:15,18 <b>CAN/CGSB</b> [3] 34:21 34:23 172:19 <b>Canada</b> [62] 1:9 3:1 4:5 7:2,22 8:14,25 9:14 10:1 13:12 19:5,12,14,19,23 20:23 22:7,24 23:14,20 25:5,11,12,19 27:16 30:22 37:2,20 52:10 56:5 59:18,19 69:21 70:3,7 71:11 99:17 101:18 107:11 114:21 126:6 129:3 140:23 141:2 148:5 169:20 171:5 172:24 176:21 179:12,15,19 180:12 186:17 187:4 202:25 204:3,6,15 205:1 205:4 240:15 <b>Canada's</b> [3] 23:19 56:15 80:8 <b>Canadian</b> [22] 4:21 7:4 7:7 9:1 20:7 22:16 23:24 24:12 34:3 36:24 42:5 52:20 120:9,11 169:17 169:20 170:1,6,12 172:16 172:25 253:14 <b>cannot</b> [5] 40:7 44:17 45:10 152:23 182:16 <b>capabilities</b> [1] 186:15 <b>capability</b> [1] 69:7 <b>capacity</b> [5] 150:1 176:6 176:23 177:3 180:19 <b>CAPP</b> [9] 24:13 33:17 37:12 109:1 146:22 155:3 155:10,17 213:2 <b>career</b> [1] 115:6 <b>carried</b> [1] 250:8 <b>carries</b> [1] 132:5 <b>CARS</b> [1] 20:7 <b>case</b> [6] 160:8 196:6 204:6 214:1 236:20 249:13 <b>cases</b> [1] 224:19 <b>catch</b> [1] 124:9 <b>catching</b> [1] 79:23 <b>categories</b> [1] 121:1</p>	<p><b>category</b> [1] 197:25 <b>causes</b> [1] 159:19 <b>centimetres</b> [1] 151:6 <b>centre</b> [7] 9:16,18 10:2 10:24 14:2 147:9 255:13 <b>centres</b> [1] 129:19 <b>certain</b> [10] 20:9 25:17 39:14 44:14 45:24 52:12 63:4 90:16 119:19 170:17 <b>certainly</b> [1] 251:12 <b>certificate</b> [15] 20:10 22:14,15,21 25:6 28:1 28:16 170:24 171:5,7,9 171:13,24 172:8 256:1 <b>certificates</b> [7] 20:1,3,8 23:10 25:16 60:24 175:10 <b>certification</b> [8] 12:15 15:9,12 17:2 19:19 20:21 65:11 172:14 <b>certified</b> [3] 105:13 107:9 113:22 <b>certify</b> [2] 20:25 256:2 <b>cetera</b> [3] 84:16 110:12 119:22 <b>CGSB</b> [26] 33:8,20,23 34:2,11,16,20 35:8,12 35:13 36:1,9,11,15 37:1 38:9 156:18 157:12 159:20,25 160:3,6,13 213:4 242:2 243:3 <b>chain</b> [1] 166:2 <b>challenge</b> [5] 119:4 159:9 167:5 242:9,22 <b>challenges</b> [1] 49:1 <b>chance</b> [2] 4:8 165:6 <b>change</b> [19] 21:20 53:17 65:1,7 71:1 78:14 84:11 122:8,11 124:9 125:1,2 128:12 143:15 151:8,9 166:18 167:8 174:3 <b>changed</b> [8] 61:16 62:3 70:23 124:2 125:5,8 132:2 149:8 <b>changes</b> [38] 5:5 61:7,19 61:22,25 63:9 69:19 70:5 70:6,9 85:9,12 114:1,14 114:15 125:21 128:13 140:20 141:8 143:13,18 145:16,19 163:8 165:13 167:1 170:11,17,21 173:13 177:25 196:4,5 215:21 216:3 236:19,21 237:18 <b>changing</b> [2] 89:9 114:15 <b>channel</b> [2] 185:5,10 <b>channels</b> [1] 131:19 <b>chapter</b> [1] 172:15 <b>chart</b> [2] 64:10 134:20 <b>charts</b> [2] 132:22 211:4 <b>check</b> [17] 89:20 101:23 102:6,11 103:1 108:10 125:8 136:8,8,10,11 172:13 200:22 201:22 203:21,23 207:18 <b>checked</b> [8] 95:5 106:17</p>	<p>132:13 199:23 209:17 211:1 221:24 238:5 <b>checking</b> [4] 123:17 125:9 201:20 218:13 <b>checklist</b> [4] 101:5 103:18 107:13,16 <b>checks</b> [7] 14:10 107:19 127:8 136:13 137:3 201:15 211:3 <b>chemicals</b> [1] 50:9 <b>chest</b> [2] 61:11 66:15 <b>Chief</b> [1] 169:1 <b>childhood</b> [1] 8:20 <b>chin</b> [2] 136:2,3 <b>chlorine</b> [2] 86:18,21 <b>choice</b> [1] 65:23 <b>choose</b> [1] 38:9 <b>chose</b> [1] 65:24 <b>chosen</b> [1] 52:19 <b>chunk</b> [1] 214:19 <b>Cindy</b> [1] 256:11 <b>circumference</b> [1] 136:1 <b>clarification</b> [2] 225:20 235:22 <b>clarify</b> [2] 168:1 224:1 <b>classified</b> [1] 192:18 <b>clause</b> [3] 64:19 72:15 90:4 <b>clean</b> [1] 71:22 <b>cleaned</b> [1] 221:24 <b>cleaning</b> [2] 12:15 106:11 <b>clear</b> [6] 74:13 185:7 186:4 207:4 230:22 240:4 <b>cleared</b> [8] 138:10 142:24 218:23,24 220:6 221:14 223:9 231:15 <b>clearly</b> [3] 160:7 162:18 179:4 <b>client-centred</b> [1] 34:5 <b>clients</b> [1] 32:7 <b>climb</b> [1] 41:11 <b>clip</b> [7] 74:19,22,24 75:1 75:2,3 102:4 <b>Clo</b> [2] 157:19,22 <b>close</b> [3] 51:18 77:1 116:4 <b>closed</b> [2] 115:25 242:12 <b>closer</b> [2] 5:22 74:4 <b>closing</b> [1] 165:5 <b>clothes</b> [2] 195:16 251:1 <b>clothing</b> [7] 6:10,11 11:13 14:8 31:16 32:1 163:15 <b>clubs</b> [1] 3:24 <b>co-pilot</b> [1] 50:21 <b>CO2</b> [5] 26:25 96:10 102:9,10,12 <b>coast</b> [7] 7:6 30:18,20 205:20 206:2 226:25 240:14 <b>coated</b> [1] 122:15</p>
---	---	---	--	---

<p><b>code</b> [4] 102:9 104:5,11 104:15</p> <p><b>codes</b> [1] 105:14</p> <p><b>cold</b> [11] 17:4 32:10 144:23 145:4,5,8 152:15 209:13 215:21 231:7 244:4</p> <p><b>collar</b> [2] 74:1 208:16</p> <p><b>Collins</b> [632] 1:8,9,11,14 1:15 2:11,14,17,18,21 2:23 3:6,11,21 4:12 5:12 6:1,6,21 7:3,12,20 8:11 8:16,22 9:3,9,13 10:6,18 11:2,9,22 12:2,6,13 13:3 13:13,18 14:5,13,20,24 15:11 16:7,13,18,25 17:14,18 18:1,6,20,25 19:6,11 20:6,19 21:12 21:16 22:3,8,13 23:2,11 24:5,10 25:2,9 26:1,14 26:21 27:12,18 28:5,9 28:19 29:16,20 30:13,17 30:21 31:1,7,11,23 32:2 32:6,14 33:2,12,25 35:2 35:11,19 36:19 37:3,9 37:17,23 38:2,6,11 39:8 40:1,12,16,20 41:5,25 42:4,15,25 43:4,8,19,25 44:8,22 45:18 46:1,5,15 47:7 48:5 49:3,22 50:4 50:24 51:7,20 52:4,18 52:24 53:6,14,18 54:1 54:21 55:10,21 56:1,11 56:23 57:5,10,19 58:4,8 59:4,13 60:1,11,22 61:4 61:9 62:9,15 63:11,16 63:24 64:9,22 65:4,18 65:22 66:4,11,24 67:11 67:22 68:11,17,22 69:3 69:9,14 70:1,12 71:8 72:2,9,23 73:4,11,18,24 74:8,23 75:18 76:7,14 77:10,16,22 78:7,21 79:2 79:6,21 80:12,22 81:6 81:22 82:7,14,22 83:9 83:14,18 84:4,10,14,23 85:14,25 86:9,17 87:3 87:13,22 88:3,13,22 90:9 91:3,16 92:2,7,11,16,22 93:1,7,17 94:3,17 95:16 95:22 96:1 97:2,17 98:1 98:14,21 99:4,12,21,25 100:16,20,25 101:8,15 103:13 104:6,13 105:1 105:22 106:8 108:2,21 109:8,14,18,24 110:7,16 110:24 111:11,15 112:3 113:4,9,14 114:8,13,19 116:21 117:10,14 118:5 118:9,24 119:6,17 120:4 120:8 121:16 122:6 123:6 123:10 124:7,24 125:25 126:4,9,13,17 127:3,7 128:6,15 129:11 130:4 130:10,14 131:5,9,17 132:7,19 133:9,23 134:4 134:13,18,24 135:4,8,13 135:18 137:8,14 138:2,7 138:16 139:7,11,17 140:8 140:17,25 141:14,19,23 142:3,7,12 143:12,22 144:3,8,13 145:21 146:1</p>	<p>146:15 147:1,5,20 148:2 148:12,18 149:10,18 150:6,10 151:25 152:16 152:21 153:22 154:22 155:9,21,25 156:6,11,16 157:1 158:5,18 159:2 160:14,20 161:12,17,22 162:3,9,23 163:24 164:22 165:1,15 166:24 167:14 167:21,25 168:23 169:3 169:11,18,23 170:3,8,18 171:2,18 172:4,9 173:12 174:5,9,13,20,24 175:5 175:14,22 176:7,12,24 177:4,18 178:2,8,17,22 179:1,8,17 180:13,20 181:2,7,22 182:13,17,24 183:3,10,16,22 184:4,9 184:13,18,24 185:6,12 185:17,23 186:7,13,24 187:5,14,21,25 188:4,14 188:19,25 189:4,9,24 190:6,11,15,23 191:6,10 191:18 192:1,6,14,25 193:5,7,14,25 194:5,13 194:17,21 195:1,19 196:2 196:22 197:1,10,19 198:3 198:11,17 199:3,9,10,18 199:20 200:2,8,13,15,25 201:4,8 202:6,17 203:2 203:11,19,24 204:11 205:2,8,13 206:4,10,22 206:25 207:12 208:8,13 208:23 209:2,7,18,24 210:2,16,25 211:10,19 211:23 212:8,17,24 213:14 214:6 215:5,12 215:25 216:5,11,17,21 217:2,6,16 218:4,11,22 219:15,19 220:4 221:6 221:12 222:1,15 223:6 223:21 224:10 225:1,5,6 225:10,12,13,22 226:7 226:17,24 227:6,14,25 228:23 229:16,24 230:8 230:19 231:2,20,25 232:5 232:15,20,24 233:4,15 233:21,25 234:6,19,24 235:6,19,21 236:3,9,13 237:10,15 238:7,11,16 239:4,18,23 240:7,13,18 241:1,7,12,17 242:3,15 242:20 243:4,9,13 244:19 245:9 246:4,22 247:2,7 247:21 249:14,20 250:1 251:16 252:3,21 253:2,9 253:18 254:5,13,24 255:4</p> <p><b>colour</b> [2] 43:23 44:1</p> <p><b>colours</b> [1] 44:2</p> <p><b>combination</b> [1] 43:13</p> <p><b>comfort</b> [21] 111:23 113:15 116:24 117:5 125:14 162:11 192:16,19 192:20,22 193:3 194:6 194:20 195:25 196:9,21 229:3 231:4 250:25 251:3 251:25</p> <p><b>comfortable</b> [7] 114:3 121:20 149:24 231:12 249:8 250:20,22</p> <p><b>coming</b> [14] 12:18 21:9</p>	<p>114:25 163:1 165:12 175:13 177:21,24 193:22 194:1 212:23 247:3 248:6 255:18</p> <p><b>commencement</b> [1] 81:3</p> <p><b>commencing</b> [1] 35:23</p> <p><b>comment</b> [6] 114:21 122:22 149:22 165:6 252:4 253:10</p> <p><b>comments</b> [15] 5:20 116:24 121:9,18 152:7 161:23 162:2,6,10,13 163:1 192:15 237:6,14 253:24</p> <p><b>comments/feedbacks</b> [1] 110:10</p> <p><b>commercial</b> [4] 146:3,9 146:12 203:14</p> <p><b>commissioned</b> [2] 155:4 213:1</p> <p><b>Commissioner</b> [48] 1:2 1:7,17,22 2:2,7 76:17,19 76:23 77:7 154:7,13,16 154:18,21 167:23 168:7 168:15,21,25 211:12 225:8 235:12,17 243:8 243:15 245:4,19 246:6 246:25 247:4,19 248:16 249:18,22 250:3 251:19 252:19,23 253:5,16 254:3 254:10,22 255:1,6,10,16</p> <p><b>committee</b> [6] 35:21 36:5 37:8 38:10,17 160:13</p> <p><b>committees</b> [6] 36:9,10 131:11,14 132:12 193:23</p> <p><b>common</b> [1] 118:11</p> <p><b>communicated</b> [1] 205:24</p> <p><b>communications</b> [1] 131:19</p> <p><b>community</b> [10] 34:12 34:12,13,15,17 36:6 38:20 165:17 239:11 245:1</p> <p><b>companies</b> [6] 6:19 37:13 84:22 85:1 97:24 98:13</p> <p><b>company</b> [30] 4:14 6:23 8:3 9:1,2,4,5,7 13:10 17:12,19 31:5,6,8 37:15 37:21 38:1 80:7 98:6 128:22 131:16 169:15,22 177:2 190:3,10 191:4 204:18,24 245:10</p> <p><b>company's</b> [1] 169:8</p> <p><b>compare</b> [1] 241:24</p> <p><b>comparison</b> [1] 149:25</p> <p><b>competitive</b> [1] 83:24</p> <p><b>competitor</b> [3] 37:22 42:22 253:14</p> <p><b>competitors</b> [7] 13:9 43:10 76:12,15 83:24 180:18,21</p> <p><b>complaining</b> [4] 195:24 236:7 237:3,5</p>	<p><b>complaints</b> [4] 193:22 194:10 236:1,4</p> <p><b>complete</b> [6] 159:9 190:4 199:15 230:18 242:9,21</p> <p><b>completed</b> [3] 101:21 116:13 149:11</p> <p><b>completely</b> [2] 108:20 188:5</p> <p><b>completing</b> [4] 118:14 197:23 198:9,23</p> <p><b>compliance</b> [3] 24:20 141:1 187:6</p> <p><b>compliant</b> [1] 141:6</p> <p><b>component</b> [13] 26:7,23 39:10,15,19 41:6 119:18 136:8,16 141:5 165:22 186:23 187:8</p> <p><b>components</b> [19] 15:24 20:11,12,14 63:18,20 82:15 89:6 101:3,3 102:14 107:19 108:14 141:4,9 210:20 212:9 215:17,19</p> <p><b>comprehensive</b> [1] 34:6</p> <p><b>compress</b> [1] 147:15</p> <p><b>compressed</b> [1] 88:6</p> <p><b>computer</b> [1] 242:12</p> <p><b>concept</b> [2] 78:24 176:2</p> <p><b>concern</b> [3] 88:1 211:8 251:5</p> <p><b>concerned</b> [1] 134:3</p> <p><b>concerns</b> [3] 87:14 88:4 210:6</p> <p><b>concession</b> [1] 49:21</p> <p><b>concluded</b> [2] 157:17 213:5</p> <p><b>conclusion</b> [1] 198:7</p> <p><b>condition</b> [4] 26:15 52:7 102:7,24</p> <p><b>conditions</b> [15] 26:2 52:8 157:9 158:11 159:12 165:20 212:2 216:10 242:24 243:18 247:20,22 248:1 249:9 254:25</p> <p><b>conduct</b> [2] 205:20 219:9</p> <p><b>conducted</b> [2] 160:2 240:2</p> <p><b>conducting</b> [1] 206:13</p> <p><b>confess</b> [1] 217:14</p> <p><b>confidence</b> [1] 249:12</p> <p><b>confident</b> [3] 121:6,24 175:13</p> <p><b>configuration</b> [3] 62:1 156:1 174:4</p> <p><b>configurations</b> [1] 63:13</p> <p><b>confirmed</b> [1] 166:20</p> <p><b>confirming</b> [1] 117:24</p> <p><b>conform</b> [1] 149:2</p> <p><b>conformity</b> [1] 34:7</p> <p><b>confused</b> [1] 248:5</p> <p><b>connect</b> [1] 49:9</p> <p><b>consider</b> [1] 195:25</p> <p><b>consideration</b> [2]</p>	<p>176:14 212:22</p> <p><b>considerations</b> [1] 176:14</p> <p><b>considered</b> [3] 91:9 100:10 147:19</p> <p><b>constraints</b> [1] 144:17</p> <p><b>consumers</b> [3] 34:11 131:1 163:14</p> <p><b>contact</b> [3] 78:9 80:16 131:4</p> <p><b>contacting</b> [2] 130:8 132:10</p> <p><b>contending</b> [1] 243:22</p> <p><b>content</b> [2] 43:11 180:9</p> <p><b>continually</b> [1] 129:16</p> <p><b>continue</b> [7] 25:19 60:17 99:10 117:23 214:17 226:15 244:23</p> <p><b>continued</b> [8] 118:12,16 122:19,24 137:12 198:14 199:22 213:11</p> <p><b>continues</b> [1] 62:19</p> <p><b>continuous</b> [1] 248:7</p> <p><b>contract</b> [46] 4:24 5:1,4 29:10 32:15 55:7 64:14 64:19,23 75:23 78:8,25 79:24 81:16 82:17,21,23 83:1,21,22 85:9 87:7 90:1 109:22 145:18,19 145:22 146:2,12 156:19 173:18 177:7,8,16,24 180:23 190:18 192:11 193:18 202:3,5 203:13 204:4,23 233:1 240:4</p> <p><b>contracted</b> [1] 233:6</p> <p><b>contractor</b> [2] 204:16 204:20</p> <p><b>contractors</b> [3] 139:22 205:21,25</p> <p><b>contracts</b> [15] 7:23 21:22 22:5 84:20,21 85:2,4 86:2 90:3 97:22,23 99:13 202:1,15 233:9</p> <p><b>control</b> [4] 4:6 11:17 14:11 15:2</p> <p><b>controlled</b> [2] 6:20,22</p> <p><b>controlling</b> [1] 77:3</p> <p><b>conversion</b> [1] 45:20</p> <p><b>coordinator</b> [1] 80:3</p> <p><b>copilot</b> [1] 232:19</p> <p><b>copy</b> [1] 5:18</p> <p><b>CORD</b> [10] 109:6 155:1 156:14 160:2,12 211:19 241:20 242:6 247:23 248:10</p> <p><b>core</b> [5] 54:4 91:9 151:19 152:8 249:10</p> <p><b>corner</b> [1] 8:9</p> <p><b>corporate</b> [1] 4:13</p> <p><b>corporately-owned</b> [1] 7:5</p> <p><b>Corporation</b> [2] 29:12 37:21</p> <p><b>correct</b> [88] 2:19 8:12 18:21 21:13 23:3,23</p>
--	--	--	---	--

<p>27:19 28:20 31:24 35:20 37:4,10,18 38:3 40:17 46:6 50:25 53:7,15 55:22 61:5 65:19 69:4 77:17 77:23 86:10 92:8 98:22 99:5,22 100:17 109:25 111:12 118:25 119:18 128:7 133:24 135:14 138:3 141:15 152:17 161:13 169:12 170:19 172:3,5 174:6,21,25 177:19 178:3 179:9 180:12 181:3 183:11,21 183:23 184:10,14 185:8 186:8,25 189:25 190:7 191:7,9,11 192:24 197:20 198:4 201:18 202:19 212:18 216:1 219:16 221:7 226:8 227:15 232:16 233:20,22 234:20 236:10 239:19,24 243:5 247:22 256:3</p> <p><b>correction</b> [1] 111:1 <b>corrode</b> [1] 40:7 <b>cost</b> [2] 82:2 252:1 <b>Cougar</b> [11] 68:6 88:20 88:24 89:21 105:23 118:11 137:16 140:7 187:18 207:20,21 <b>counsel</b> [1] 168:5 <b>count</b> [1] 228:19 <b>counted</b> [1] 228:15 <b>counterclockwise</b> [1] 115:20 <b>couple</b> [8] 148:3 159:4 161:7 225:17 231:16 235:16,21 243:11 <b>course</b> [10] 88:7 123:14 127:15 133:17 136:15 151:12 164:3 180:6 222:11 246:7 <b>cover</b> [8] 38:19 54:25 59:7 85:4 91:7 182:7 203:14 206:16 <b>covered</b> [5] 73:16 75:21 85:5 96:21 108:4 <b>covering</b> [1] 117:18 <b>covers</b> [2] 75:10 171:21 <b>crash</b> [5] 187:18 194:4 195:9,18 248:19 <b>create</b> [1] 120:13 <b>created</b> [2] 99:9 103:19 <b>crew</b> [10] 111:23 112:1 112:10 113:13 125:15 233:3,13,20 234:22 251:18 <b>cries</b> [2] 98:10 199:18 <b>criteria</b> [3] 40:8 41:2,13 <b>critical</b> [1] 150:21 <b>crown</b> [2] 136:2,4 <b>crucial</b> [1] 245:8 <b>CSA</b> [1] 36:17 <b>CSGB</b> [1] 158:14 <b>cuff</b> [2] 143:14 211:3 <b>cuffs</b> [13] 43:15 61:24 93:10 96:11 102:23,23</p>	<p>113:17 143:16 202:13 210:19 211:5,6 236:5 <b>cumbersome</b> [2] 243:25 253:8 <b>curious</b> [1] 170:24 <b>current</b> [23] 4:23,24 14:25 16:19 23:22 29:10 35:22 53:12 59:17,19 81:2 89:11 129:4,7 160:8 167:4 177:6 208:2,2 213:19 244:1,20,21 <b>custom</b> [41] 71:2 108:23 123:2 142:6,9,13 143:1 143:6,8 163:5 178:6 186:15,16 187:17,20 193:9 196:4 200:19 202:4 202:16,25 203:3,4,6,12 203:18 218:9 220:24 221:2 222:14,23 223:3,4 223:5,16,22 224:13 236:19,21 237:18,19 <b>customed</b> [3] 114:4,7 114:11 <b>customer</b> [2] 10:9 173:4 <b>customization</b> [2] 202:11,13 <b>customize</b> [1] 186:12 <b>customized</b> [3] 186:3,6 202:23 <b>customizing</b> [4] 69:7,13 70:10 220:11 <b>cut</b> [4] 70:16 103:15 152:2 166:2 <b>CV</b> [2] 29:25 31:4 <b>cycle</b> [11] 58:20 71:21 100:7,8,11 104:19 106:6 106:18 107:15 209:19,25 <b>cycles</b> [2] 100:7 105:3 <b>cycling</b> [2] 145:4,5 <b>cylinder</b> [2] 102:10,12</p> <hr/> <p style="text-align: center;"><b>-D-</b></p> <hr/> <p><b>d</b> [6] 29:23 133:10,11 136:14 173:11 174:1 <b>daily</b> [2] 58:15 190:4 <b>damage</b> [2] 86:19 125:7 <b>Dartmouth</b> [11] 2:25 9:5 9:15,20 10:3 11:6 14:12 18:14 30:16 37:15 133:12 <b>data</b> [7] 60:25 159:7,19 171:24 175:9,9 242:6 <b>date</b> [9] 28:17 72:20 81:3 81:7 83:1 87:8 146:10 205:9 238:8 <b>dated</b> [2] 172:19 256:9 <b>dates</b> [4] 7:23 81:13 85:17 146:5 <b>dating</b> [1] 127:11 <b>days</b> [12] 100:9 126:16 137:19,22 160:22 167:16 190:22 191:1,2,5,14,22 <b>deal</b> [5] 6:10,13 145:19 146:9 152:20 <b>dealt</b> [2] 160:25 193:8 <b>December</b> [7] 28:18,20</p>	<p>28:21 110:20,25 125:18 143:23 <b>decided</b> [2] 52:21 75:24 <b>deciding</b> [1] 134:22 <b>decision</b> [3] 133:18 197:6 207:8 <b>deck</b> [2] 17:6 41:17 <b>Decker</b> [5] 94:6 149:15 244:6 246:14 248:21 <b>Decker's</b> [4] 89:19 199:24 244:2,7 <b>deemed</b> [2] 107:20 108:9 <b>deep</b> [1] 139:24 <b>defects</b> [1] 127:17 <b>definitive</b> [1] 215:13 <b>deflate</b> [1] 94:25 <b>degree</b> [2] 222:12 250:25 <b>degrees</b> [2] 151:18 249:11 <b>delayed</b> [1] 248:8 <b>deliver</b> [3] 71:12 157:22 189:12 <b>deliverables</b> [1] 98:8 <b>delivered</b> [4] 75:8 87:2 218:19,25 <b>delivery</b> [2] 75:22 86:25 <b>demonstrate</b> [1] 122:25 <b>department</b> [1] 10:11 <b>departure</b> [1] 118:1 <b>depending</b> [7] 15:24 36:12 150:25 153:1 217:23 220:5 222:7 <b>deploy</b> [1] 74:11 <b>deployed</b> [2] 49:8 75:3 <b>deployment</b> [1] 94:21 <b>describe</b> [4] 5:20 12:11 147:6 169:10 <b>described</b> [6] 146:21 158:21 174:17 205:12 240:22 249:24 <b>describing</b> [1] 64:11 <b>design</b> [18] 4:20 10:10 14:3 15:22 16:9 17:3 29:24 43:14 61:24 69:19 109:12 115:4 119:11 129:4 151:2 175:20 220:18 233:19 <b>designation</b> [3] 15:20 69:1 99:19 <b>designed</b> [14] 46:13,16 99:11 151:7 159:8 169:15 169:16,19,22 170:2,7 223:10 226:4 242:8 <b>designing</b> [1] 46:7 <b>designs</b> [1] 62:16 <b>detail</b> [5] 12:11,20 48:23 76:5 250:11 <b>detailed</b> [3] 69:6 181:1 186:1 <b>details</b> [5] 5:2 72:1 130:17 173:23 204:25 <b>detected</b> [1] 103:10 <b>deteriorate</b> [2] 215:11</p>	<p>215:15 <b>determination</b> [2] 134:17,19 <b>determine</b> [2] 108:17 159:14 <b>determined</b> [7] 55:6 72:20 135:23 137:24 157:12 160:3 204:17 <b>determining</b> [1] 152:4 <b>develop</b> [7] 23:16 36:7 78:15 135:17 166:14 240:24 245:2 <b>developed</b> [11] 21:23 23:13 60:21 77:20 136:23 166:21 172:2 191:19 212:1 240:23 241:11 <b>developing</b> [4] 133:16 174:8 180:19,22 <b>development</b> [22] 4:20 15:23 16:11,14 29:12,24 30:25 31:16 32:22,24 34:6 35:24 38:24 51:10 60:8 80:7 115:4 132:14 145:17 162:7 175:6 208:3 <b>device</b> [11] 17:6 66:6 77:15 78:3,19 88:2 100:19,21 174:4 181:14 182:11 <b>devices</b> [4] 87:1 88:15 174:3 233:14 <b>dexterity</b> [1] 245:15 <b>diagonal</b> [2] 40:5 136:2 <b>diameter</b> [1] 40:15 <b>dictate</b> [4] 48:2,6 201:11 217:25 <b>dictated</b> [3] 25:18 43:24 48:3 <b>difference</b> [7] 15:19 164:6,13 173:10 181:5 250:16,19 <b>differences</b> [10] 50:6 77:13 97:23 98:3 159:25 164:5 173:19 230:13,14 250:18 <b>different</b> [36] 15:18 17:24 47:4 50:21,25 51:6 62:16 63:12 65:1,16,25 70:4 73:9,17 75:12 76:24 83:7 93:8 97:24 100:4 107:5 129:21 136:5 146:19 148:16 161:11 163:22 172:11 173:15 174:3 202:2 203:9 226:25 228:3 230:5 254:15 <b>differentiators</b> [1] 43:20 <b>difficult</b> [3] 120:21 122:18 199:13 <b>difficulties</b> [1] 200:4 <b>difficulty</b> [11] 118:14 122:21 127:13 128:19 152:13 197:23 198:9,23 199:12 200:3,7 <b>diligently</b> [1] 47:16 <b>dim</b> [1] 248:8 <b>direct</b> [1] 23:21</p>	<p><b>direction</b> [2] 38:16 140:7 <b>directions</b> [1] 209:5 <b>disagree</b> [8] 197:15,17 197:24,25 198:18,19,21 198:22 <b>disagreed</b> [4] 117:22 121:4,5 122:22 <b>disagreeing</b> [2] 118:22 118:23 <b>discovered</b> [1] 195:9 <b>Discoveries</b> [2] 256:12 256:14 <b>discuss</b> [2] 35:22 243:11 <b>discussing</b> [1] 244:22 <b>discussion</b> [8] 91:1 116:22 159:4,6 160:22 204:23 219:2 241:21 <b>discussions</b> [9] 34:17 86:1 130:19 201:1 219:8 230:21 244:25 245:10,17 <b>dismayed</b> [1] 169:6 <b>dispatched</b> [1] 133:7 <b>dispensation</b> [1] 188:11 <b>display</b> [1] 64:10 <b>disposable</b> [1] 245:5 <b>distribution</b> [7] 9:16,18 10:2,10,24 14:2 17:4 <b>ditching</b> [1] 212:10 <b>diving</b> [1] 108:23 <b>division</b> [2] 6:15 7:6 <b>document</b> [9] 51:17 79:14 80:11,13 85:5 174:16 183:17 184:5 211:20 <b>documentation</b> [7] 51:13 60:15 73:6 100:4 100:5 132:25 220:23 <b>documented</b> [1] 4:15 <b>documents</b> [4] 79:12 100:2 101:17 182:21 <b>doesn't</b> [7] 62:21 111:16 153:23 179:21 184:21 200:5 233:18 <b>dolls</b> [1] 191:25 <b>don</b> [11] 117:25 118:3 120:13,16,22 122:12 136:9,11 152:14 231:7 254:19 <b>Donald</b> [3] 29:22,25 133:11 <b>done</b> [63] 18:13 27:23 41:15 60:14 67:25 101:12 103:16,18,24 106:18 107:1,16 111:2,3,5 114:1 115:5 122:4 127:8 132:21 137:1,3 138:14,24 140:11 140:11,13 142:24 146:3 146:8,14 158:14,24 170:11 176:2 181:16 187:17 188:5 201:13,14 201:16 203:14 205:4 206:3,5,7 215:17 216:4 216:9,16 217:25 221:24 226:11 235:23 237:13 239:15 240:3 241:21,22 241:25 242:1 245:14</p>
--	--	---	--	--



247:23 <b>donned</b> [2] 128:18 153:3 <b>donning</b> [12] 26:16 45:5 46:17 52:12 122:11 127:13,21,23 128:19 129:5 144:24,24 <b>door</b> [2] 45:6,11 <b>double</b> [5] 67:14 108:10 172:12 203:21,23 <b>down</b> [39] 3:9 17:11 21:2 27:4 38:21 41:23 45:10 55:18 62:20 70:17 72:16 72:17 74:13 75:21 79:13 81:1 93:12,20 94:23 95:1 97:7,7,8 102:4 106:24 118:19 124:16,17 147:13 148:23 149:4 157:6 164:12 167:8 201:20 214:8 231:23 234:11 253:22 <b>downside</b> [1] 144:23 <b>downward</b> [1] 95:6 <b>drive</b> [1] 167:11 <b>dropping</b> [2] 68:3 215:24 <b>drove</b> [1] 228:9 <b>drowns</b> [1] 244:5 <b>dry</b> [3] 62:25 108:23 119:7 <b>dryland</b> [1] 41:8 <b>dual</b> [10] 60:12,18 226:14 226:16,20 227:3 228:11 229:22,23,25 <b>due</b> [1] 194:22 <b>dunker</b> [1] 115:11 <b>duplication</b> [1] 166:5 <b>durability</b> [2] 39:16 245:15 <b>duration</b> [2] 212:7,15 <b>during</b> [17] 16:2 74:3 76:23 88:5 115:9 124:14 157:10 159:24 204:23 208:20 211:1 214:4,16 218:14 242:1 248:12,13	<b>e-mail</b> [2] 130:6,16 <b>e-mails</b> [1] 133:1 <b>E352</b> [3] 253:21 254:14 254:14 <b>Earle</b> [166] 168:12,16,19 168:23,24 169:13,21,25 170:5,13,23 171:4,8,12 171:20 172:6 173:8,24 174:7,11,15,22 175:1,11 175:17 176:4,9,17 177:1 177:14,20 178:4,13,19 178:24 179:3,10 180:8 180:17,24 181:4,20 182:10,15,19 183:1,6,12 183:18,24 184:6,11,15 184:20 185:4,9,14,20,25 186:9,18 187:1,10,16,23 188:2,10,16,22 189:2,6 189:11,18 190:1,8,13,17 191:3,8,12,23 192:3,8 192:21 193:4,12,19 194:3 194:8,15,24 195:7,23 196:13,24 197:8,12,21 198:5,16 199:7,17 200:1 200:11,21 201:3,25 202:8 202:20 203:8,16,22 204:1 204:10 205:6,10,18 206:6 206:19,24 208:4,10,18 208:25 209:9,15,22 210:1 210:22 211:7,13,15,18 212:6,14,19 213:8 214:2 214:24 215:8,18 216:2,8 216:14,19,25 217:4,10 218:1,6,15 219:11,17,21 221:1,8,15 222:10,25 223:19,24 224:22 225:4 225:9 251:9 252:5 <b>early</b> [7] 79:7 81:18 166:23,25 174:10,16 193:9 <b>ease</b> [2] 102:1 118:17 <b>easier</b> [3] 102:3 118:18 148:22 <b>easily</b> [2] 119:21 120:15 <b>east</b> [4] 205:20 206:2 226:25 240:14 <b>Eastern</b> [3] 9:16 10:2 14:2 <b>EBS</b> [4] 71:13,17 232:25 233:8 <b>EBS/HUEBA</b> [2] 189:13,16 <b>economic</b> [1] 34:8 <b>education</b> [2] 115:21 116:12 <b>effect</b> [1] 212:23 <b>effective</b> [2] 28:21 206:2 <b>effort</b> [2] 56:9 165:16 <b>efforts</b> [1] 166:6 <b>egress</b> [15] 44:18 136:19 150:23 151:2 152:24 153:3 157:10 158:8 212:10 214:9,9,13,16,20 245:16 <b>eight</b> [8] 22:10 70:24 105:3,3 106:6 107:15 142:20 210:23 <b>eighteen</b> [1] 222:9	<b>eighth</b> [2] 106:18 209:19 <b>either</b> [27] 24:4,6 27:20 28:22 68:6 78:14 87:20 94:21 97:5 112:18 118:22 120:14,16,23 121:8,20 121:22,25 122:21 128:4 130:6,15 139:18 143:3 145:12 207:9 208:24 <b>elastics</b> [1] 102:23 <b>electronic</b> [1] 80:23 <b>element</b> [7] 44:13 45:9 51:23 52:5 106:16 204:14 205:19 <b>elements</b> [1] 254:21 <b>eleven</b> [1] 48:21 <b>eliminated</b> [1] 79:18 <b>elsewhere</b> [1] 241:6 <b>ELT</b> [1] 185:19 <b>embolisms</b> [1] 88:5 <b>emergency</b> [8] 66:5,12 96:2 151:13 179:5,6 185:16 229:9 <b>emersion</b> [1] 244:11 <b>emersions</b> [3] 246:24 247:12,15 <b>employ</b> [1] 139:19 <b>employed</b> [4] 3:19 10:4 11:7 68:23 <b>employee</b> [12] 9:10 30:11 32:13 33:1 68:16 98:12,23,25 105:20,23 114:21 137:4 <b>employees</b> [6] 10:8 11:10 13:1 64:21 130:9 137:7 <b>employer/employee</b> [1] 105:24 <b>enable</b> [2] 20:4 72:7 <b>EnCana</b> [1] 11:24 <b>encompass</b> [1] 10:8 <b>encompasses</b> [1] 17:8 <b>encountered</b> [1] 246:15 <b>end</b> [14] 32:23 34:14 38:19 95:1 115:17 126:10 131:20 133:17 143:5 148:20 157:4 201:16 218:10 249:24 <b>ended</b> [1] 238:14 <b>ending</b> [2] 78:9 195:14 <b>ends</b> [2] 40:24 147:9 <b>energy</b> [3] 60:9 205:20 206:1 <b>enforces</b> [1] 33:22 <b>engage</b> [1] 208:6 <b>engaged</b> [2] 206:25 207:9 <b>engineer</b> [2] 30:5 115:3 <b>ensure</b> [16] 89:22 99:9 101:22 102:4,5,9,12,14 102:15,22,24 103:3 124:3 124:8 198:15 200:16 <b>ensuring</b> [1] 132:22 <b>entered</b> [3] 86:1 89:5 105:24	<b>entire</b> [2] 226:25 239:11 <b>entirely</b> [1] 149:1 <b>entry</b> [2] 10:9 159:6 <b>environment</b> [6] 86:21 145:8,9,11 209:14 242:23 <b>environmental</b> [2] 34:9 248:1 <b>EPIRBs</b> [2] 185:11,19 <b>equals</b> [1] 64:1 <b>equipment</b> [10] 10:16 13:11 31:17 74:25 85:15 99:7 185:1 190:5 232:10 234:5 <b>equipped</b> [2] 208:11 234:4 <b>equivalent</b> [2] 62:25 75:24 <b>error</b> [2] 159:17,23 <b>escape</b> [10] 32:20 44:16 45:11,12 47:19 64:2 93:21,23 94:12 150:20 <b>especially</b> [5] 86:20 102:20 105:5 136:5 165:17 <b>essentially</b> [9] 89:8 94:4 124:2 132:24 144:15 151:7 175:19 188:11 254:2 <b>established</b> [1] 29:9 <b>estimate</b> [4] 59:6 81:2 167:16 246:2 <b>estimated</b> [3] 160:4 219:13,22 <b>estimation</b> [1] 159:18 <b>et</b> [3] 84:16 110:12 119:22 <b>European</b> [1] 6:17 <b>evaluate</b> [2] 125:5 205:21 <b>evaluated</b> [2] 123:15,16 <b>evaluation</b> [4] 72:15,25 114:23 128:22 <b>evenly</b> [1] 215:2 <b>event</b> [3] 84:2 222:12 229:8 <b>everybody</b> [15] 38:21 89:13,18,22 116:9 120:14 133:11 143:17 149:7 157:5 221:3,4 228:18 242:16 252:6 <b>evidence</b> [27] 2:1 19:22 21:9 22:23 33:16 37:12 48:24 50:16,20 53:2 74:6 77:12 90:6 128:10 137:25 146:22 149:15 155:2 172:1 186:19 218:8 226:10 244:2 248:18,24 255:10,14 <b>exact</b> [1] 45:7 <b>exactly</b> [5] 40:9 42:18 65:5 161:18 247:5 <b>EXAMINATION</b> [4] 1:11 168:23 225:10 235:19 <b>examine</b> [2] 151:23 207:10	<b>examined</b> [1] 140:6 <b>examining</b> [1] 104:9 <b>example</b> [15] 39:11 45:2 50:5,5 70:11,13,25 98:23 103:8 135:24 164:15 214:11 224:11 231:5 248:21 <b>examples</b> [2] 165:23 191:22 <b>exceed</b> [1] 157:19 <b>except</b> [1] 251:3 <b>exchanged</b> [1] 58:16 <b>exchanges</b> [2] 12:19 155:12 <b>exclusive</b> [2] 252:20,22 <b>executed</b> [1] 85:10 <b>exhaust</b> [2] 101:23 115:19 <b>exhibit</b> [54] 2:10 16:24 17:3 19:18,18 25:25,25 27:25 51:14 52:9 53:23 53:25 55:16 62:23 64:7 72:16 79:9,13,24 84:18 90:2 92:25 93:6 97:13 100:3 101:7,9 103:21 107:13 109:1,3 117:6,8 145:25 146:2 153:19,19 154:6 161:3 171:1,3,11 171:13 174:18 178:16 182:25 183:5,8 202:5,7 204:9,13 231:19 242:11 <b>exhibits</b> [12] 1:18,18,20 16:24 24:14 33:5,7 34:25 76:1 79:23 81:16 100:2 <b>exiting</b> [1] 78:14 <b>expanded</b> [1] 96:17 <b>expect</b> [10] 143:4 167:10 167:12 215:15 218:12 222:5 224:8 247:20 250:22,25 <b>expected</b> [2] 109:12 157:21 <b>expecting</b> [1] 143:25 <b>expense</b> [3] 36:5 231:3,8 <b>experience</b> [13] 29:3,23 30:7 31:14 32:19,22 36:3 110:3 115:2 150:15 195:8 228:5 247:9 <b>experienced</b> [1] 125:14 <b>experiences</b> [1] 149:16 <b>expert</b> [4] 29:3 51:8 88:14 185:19 <b>expertise</b> [4] 29:3 32:9 36:2 191:17 <b>experts</b> [1] 249:15 <b>expired</b> [1] 104:20 <b>expiring</b> [1] 177:8 <b>explain</b> [2] 4:9 51:17 <b>explained</b> [1] 118:10 <b>explicit</b> [2] 202:10 209:5 <b>express</b> [1] 46:4 <b>expression</b> [2] 70:10 112:2 <b>expressions</b> [1] 138:6 <b>expressly</b> [1] 122:14
<b>-E-</b>				
<b>E</b> [7] 21:23 22:18 116:15 144:6 172:21 173:10 176:10 <b>E-345</b> [1] 155:19 <b>E-352</b> [12] 21:5,15,17 22:1 171:21 172:18 173:3 173:10 176:5 178:5,12 179:19 <b>E-352B</b> [1] 171:21 <b>E-352C</b> [2] 171:21 173:17 <b>E-352D</b> [1] 171:22 <b>E-452</b> [23] 5:13,18 11:23 12:17 21:5,10,13 22:19 30:25 34:19 47:17 60:4 70:2 125:21 141:13 155:22 156:25 170:1 171:22 174:8 180:7 216:20 226:2				

<p><b>extent</b> [1] 149:22  <b>exterior</b> [1] 103:2  <b>external</b> [5] 18:3,12,24  26:6 179:20  <b>externally</b> [2] 18:9  179:23  <b>extra</b> [20] 72:19 90:23  91:4,8,17,22 92:1,3,3,3  92:17,19 97:16,16 105:5  163:13,16,18 214:12  254:2  <b>extracts</b> [2] 84:20,21  <b>extremely</b> [2] 70:14,16  <b>Exxon</b> [3] 54:6 56:8,12  <b>ExxonMobil</b> [8] 80:2,8  202:3,5,22 206:9,11,14  <b>eye</b> [2] 136:6 224:16</p> <hr/> <p style="text-align: center;"><b>-F-</b></p> <hr/> <p><b>F</b> [1] 202:5  <b>FAA</b> [2] 51:22 52:15  <b>fabric</b> [4] 50:7,13 102:7  103:2  <b>face</b> [35] 41:12 43:14  61:24 74:14 94:19,19  101:24 109:19 117:19  118:14 119:3,3 120:13  122:19 125:3 134:5 136:7  138:18,23 163:7 186:23  197:23 198:10,23 199:16  200:4,7,24 236:5 246:12  246:20,24 247:11,15  248:15  <b>facilities</b> [13] 4:18 14:15  18:13 19:16 34:15 84:16  85:16 110:11 112:11  113:3 131:21 186:2 205:5  <b>facility</b> [31] 9:19,21 10:5  10:7,17,19 11:6,8,10  12:1,3,5,10,12,14 13:2  14:11 22:25 23:4 29:4,8  30:16 53:8,11 54:13  56:16 72:7,12 78:2  156:17 206:14  <b>fact</b> [6] 35:16 152:13  166:18 182:20 191:13  250:21  <b>factor</b> [2] 159:18,23  <b>Fagan</b> [1] 255:14  <b>failure</b> [1] 125:4  <b>fair</b> [3] 167:18 170:14  210:12  <b>fall</b> [6] 29:9 53:21 172:23  175:24,25 176:19  <b>familiar</b> [2] 50:22 138:5  <b>family</b> [2] 172:23 173:21  <b>far</b> [10] 24:11 25:23 43:11  111:4 145:3 220:24  229:14,21 236:22 246:1  <b>Farnworth</b> [1] 31:12  <b>fashion</b> [1] 208:19  <b>faults</b> [1] 103:18  <b>favourite</b> [1] 113:19  <b>feasible</b> [1] 26:17  <b>feature</b> [6] 47:24 62:23</p>	<p>74:17 78:16,18 92:20  <b>features</b> [17] 43:21 47:17  63:5 69:16 73:19 75:7  89:16 93:9 96:22 125:18  144:20 145:1,2 148:3  170:20 231:3 248:11  <b>February</b> [1] 111:22  <b>federal</b> [4] 34:4 51:15  52:16,16  <b>feedback</b> [5] 18:10  114:20 127:12 128:16  194:1  <b>feet</b> [5] 151:8 183:19,25  184:8 253:24  <b>felt</b> [10] 102:6 114:3  117:3 134:5,6,7 146:7  151:20 207:17 250:12  <b>few</b> [7] 7:24 9:24 54:3  110:8 139:21 154:5,24  <b>field</b> [1] 162:25  <b>fighter</b> [1] 30:6  <b>figure</b> [2] 42:11 191:15  <b>figures</b> [2] 198:1 245:21  <b>file</b> [1] 220:23  <b>fill</b> [1] 68:1  <b>filled</b> [3] 68:2 207:16,17  <b>final</b> [18] 51:12 60:14  107:3,7,9,12,14,18 126:5  126:19 144:1 155:1  158:12 159:14 163:11  165:20 166:6 175:7  <b>finalizing</b> [1] 82:25  <b>finally</b> [3] 72:14 157:3  207:6  <b>findings</b> [1] 205:23  <b>fine</b> [3] 170:14 211:16  242:14  <b>finish</b> [1] 143:6  <b>finished</b> [2] 10:13 72:24  <b>first</b> [48] 1:10 2:12 4:9  9:25 14:14 20:10 21:7  27:6 34:1 35:20 39:10  46:11 78:24 103:8 106:14  111:2 117:20 127:15  133:17 134:14 135:19  137:9,19 144:9,18 146:8  148:4 152:24 159:6 161:2  161:25 167:15 168:17  174:23 175:2 177:3  192:10 193:17 197:13  207:2,2 214:18 219:23  220:13 222:19 240:4  242:4 244:11  <b>firstly</b> [1] 243:16  <b>fishing</b> [1] 46:21  <b>fit</b> [55] 13:21 46:24 62:18  64:3,12,14,18 127:8  129:2 132:13 133:19  134:1,9 135:12 136:14  136:17 137:3 138:8  142:18 143:4,18 144:23  150:14 151:3,4,7,10,11  162:17,19 163:4,11  189:22 193:6,24 194:11  194:18 195:6,11 196:18  196:18 197:5 199:11  201:17 210:7,8 218:21</p>	<p>219:5 224:19 228:17  231:4 237:5,9 239:16  251:22  <b>fits</b> [2] 196:11 221:5  <b>fitted</b> [10] 90:8 127:4  140:6 143:4 179:12  190:20 219:7 220:6  221:13 250:15  <b>fitting</b> [43] 64:20 90:10  90:19 128:1 132:15,15  133:22 137:22,25 138:9  138:12,15,17 140:12  142:21,23 145:16,20,22  190:10 191:9 193:10  194:19,20 201:6 206:20  207:4,5,19,23 208:2  218:24 219:10 222:20,22  223:11 225:3 238:5  240:22 241:4 249:23  250:12 251:9  <b>fittings</b> [20] 136:24  139:23 140:10,13 142:24  146:4,6,8 191:2,20 194:7  201:5 219:4 223:18  237:23 238:3 239:16  240:2,6,12  <b>Fitzwright</b> [3] 13:14,16  38:1  <b>five</b> [10] 3:3,13 70:24  83:21 95:10 107:5 178:20  224:9,9 246:2  <b>five-year</b> [1] 177:17  <b>fix</b> [1] 181:24  <b>fixed</b> [1] 183:19  <b>flagged</b> [4] 111:6 127:25  199:25 200:18  <b>flagging</b> [1] 223:15  <b>flame</b> [1] 17:5  <b>flap</b> [2] 94:19 101:24  <b>flash</b> [1] 102:21  <b>flashing</b> [1] 95:17  <b>flat</b> [2] 61:16 124:4  <b>fleet</b> [1] 12:22  <b>flexibility</b> [1] 164:10  <b>flies</b> [1] 140:1  <b>flight</b> [45] 5:6 67:3 68:5  86:11,14,22 89:10,14,18  89:22 95:5 112:24 113:2  113:22 120:20 121:12  124:14 126:18 127:14,22  127:24,24 128:3,4,5,9  132:8 136:23,25 137:5  138:10 150:19 181:16  187:18 197:7 199:23  207:14 218:24 221:14  233:3,13,19 234:22  237:21 240:20  <b>flights</b> [8] 58:16 67:13  71:19 72:4 88:24 112:25  127:18 210:24  <b>flip</b> [2] 182:5 242:5  <b>float</b> [1] 249:8  <b>floatation</b> [5] 17:5 32:17  44:5,7,9  <b>floor</b> [1] 45:1  <b>floppy</b> [1] 62:17</p>	<p><b>flown</b> [3] 127:9 252:12  252:13  <b>fly</b> [24] 58:18 112:12,15  112:20,21,22 125:16  138:1 139:23 142:24  201:12 207:8 219:1,3,9  219:10 220:6 223:9 224:4  238:2,14,17,21 239:8  <b>flying</b> [8] 58:17 127:1  139:1,4,6 196:20 197:2  197:3  <b>foam</b> [8] 44:13 47:10  96:17,18,19 194:23  230:11 253:21  <b>focus</b> [4] 3:15 21:2 55:20  162:16  <b>focused</b> [3] 163:3 190:25  208:1  <b>focusing</b> [1] 51:10  <b>folded</b> [1] 123:25  <b>folks</b> [3] 181:14 182:4  239:5  <b>follow</b> [3] 184:23 200:12  213:23  <b>followed</b> [1] 130:18  <b>following</b> [5] 22:17  33:15 171:15 192:9 238:2  <b>foot</b> [9] 62:22 70:24 86:11  111:6,7,9 224:9,9 254:20  <b>foot/toe</b> [1] 111:16  <b>force</b> [2] 116:2 210:12  <b>foregoing</b> [1] 256:3  <b>forehead</b> [1] 136:1  <b>forget</b> [2] 13:7 250:10  <b>form</b> [3] 101:10,12  103:21  <b>formal</b> [1] 130:1  <b>formality</b> [1] 149:11  <b>formed</b> [1] 138:23  <b>formula</b> [2] 108:9,14  <b>forward</b> [3] 128:25  207:16 247:12  <b>foul</b> [1] 17:4  <b>found</b> [14] 62:18 103:18  113:18 114:2 115:8  123:21,22 124:10 127:16  129:21 138:17 199:13  250:4 253:25  <b>four</b> [21] 22:18 73:8  108:11 112:25 116:13  137:21 138:19 140:2  141:20 161:11,15 167:15  173:21 190:22 191:1,5  191:14,22 244:5,15 245:8  <b>frame</b> [1] 236:17  <b>free</b> [1] 127:16  <b>freeze</b> [1] 145:6  <b>French</b> [1] 42:5  <b>frequencies</b> [1] 181:25  <b>frequency</b> [5] 181:11,23  182:1,2,3  <b>Friday</b> [2] 112:18 216:24  <b>frigid</b> [1] 243:19  <b>fringe</b> [1] 105:5</p>	<p><b>front</b> [9] 1:20 37:7 39:23  39:24 96:6 97:9 101:24  147:8 205:9  <b>full</b> [10] 115:20 116:4,11  117:25 118:3 144:1  162:15 202:11 209:20  217:19  <b>full-time</b> [3] 30:11 32:13  33:1  <b>fully</b> [3] 136:9 153:2  209:17  <b>fun</b> [1] 184:1  <b>function</b> [1] 69:2  <b>future</b> [4] 78:10,11  124:10 160:19</p> <hr/> <p style="text-align: center;"><b>-G-</b></p> <hr/> <p><b>G</b> [1] 204:7  <b>gap</b> [5] 47:15,16 164:15  190:14 207:3  <b>gas</b> [1] 253:13  <b>gather</b> [3] 208:11 245:18  252:25  <b>gear</b> [2] 10:17 17:4  <b>general</b> [8] 4:21 14:1  24:12 33:23 34:3 172:16  187:2,13  <b>generally</b> [9] 7:17 9:25  131:6,10 164:14 173:9  214:20 228:25 230:15  <b>generation</b> [1] 170:15  <b>gentleman</b> [1] 220:2  <b>gentlemen</b> [1] 1:3  <b>GEOFFREY</b> [1] 235:19  <b>given</b> [11] 17:23 20:9  25:17 33:16 155:2 183:8  209:10 219:22 221:16,18  244:10  <b>giving</b> [3] 83:23 154:22  184:22  <b>Global</b> [6] 6:7 7:13 17:13  17:17,19 18:8  <b>globally</b> [1] 6:14  <b>glove</b> [14] 128:12,14,20  129:4 153:2 244:10,14  244:14,20 245:5,7,11,12  245:12  <b>gloves</b> [12] 93:10 96:12  102:25 128:18 129:2,7  129:12,21 152:14 153:1  243:23,24  <b>glue</b> [1] 62:20  <b>goes</b> [8] 27:3 75:19,20  107:2 124:16 147:8  171:24 221:21  <b>gone</b> [2] 83:2 177:15  <b>good</b> [16] 1:3,7 2:13,15  72:24 76:18 102:23 116:7  122:17 134:5 136:18  171:19 211:13 213:1  225:12,14  <b>goods</b> [1] 10:13  <b>Gore</b> [2] 31:18,21  <b>Gore-Tex</b> [1] 31:21</p>
--	--	--	--	--

<p><b>government</b> [4] 31:14 32:7 34:4,10</p> <p><b>grab</b> [4] 74:12 148:19 208:14,17</p> <p><b>grams</b> [1] 214:12</p> <p><b>Grand</b> [4] 29:10 54:5 56:3 87:11</p> <p><b>great</b> [2] 36:4 235:10</p> <p><b>greater</b> [1] 251:5</p> <p><b>green</b> [3] 62:7 95:17 113:22</p> <p><b>grew</b> [1] 91:25</p> <p><b>group</b> [10] 6:9 35:20 49:10 112:13 133:10 155:3 156:14 160:2 166:10 218:17</p> <p><b>grouped</b> [1] 192:19</p> <p><b>groups</b> [2] 6:8 170:10</p> <p><b>guess</b> [23] 1:3 3:2 7:15 46:6 59:11 60:7 72:14 84:19 110:8 150:1 162:18 162:21 164:15 165:4,7 192:15 213:16 215:13 228:1 239:14 240:4 249:23 253:10</p> <p><b>guest</b> [1] 5:9</p> <p><b>guide</b> [1] 185:2</p> <p><b>guideline</b> [1] 23:21</p> <p><b>gusty</b> [1] 248:2</p> <hr/> <p style="text-align: center;"><b>-H-</b></p> <hr/> <p><b>half</b> [17] 86:12 112:15 113:5 121:11 165:2 166:4 212:7,13,16 213:13 215:1 215:2,7,17 245:22 248:4 250:24</p> <p><b>Halifax</b> [1] 25:12</p> <p><b>hand</b> [3] 5:11 153:4 221:23</p> <p><b>handing</b> [1] 67:24</p> <p><b>handle</b> [4] 137:16 208:15 208:17 217:20</p> <p><b>hands</b> [6] 107:6 152:14 244:3,7,15 245:7</p> <p><b>hang</b> [1] 209:4</p> <p><b>hanger</b> [5] 105:8 209:1 209:4,12,14</p> <p><b>hanging</b> [3] 208:11,14 208:24</p> <p><b>Hansen</b> [60] 1:4,9,18 3:1 3:3,12,14,18 4:5,15 6:5 6:7,13,23 7:1,2,13,19,21 8:2,8,25 9:14 10:1 23:14 51:2 67:20 68:16 110:3 128:23 129:16 132:5 135:3 137:9 142:17 146:7 169:4,5,9,16 172:24 180:1 189:21 190:20 193:5 196:16 201:4 206:25 207:8,17 218:20 222:20 232:9 233:18 235:23 237:8,22 240:1,5 241:10</p> <p><b>Hansen's</b> [2] 153:11 236:12</p>	<p><b>happening</b> [3] 153:16 229:13 244:25</p> <p><b>hard</b> [2] 62:20 167:16</p> <p><b>harder</b> [2] 120:18 254:18</p> <p><b>hardy</b> [1] 169:2</p> <p><b>harsh</b> [1] 242:22</p> <p><b>hazards</b> [1] 40:23</p> <p><b>head</b> [19] 2:25 9:15 10:1 27:4 29:22 55:18 74:13 97:8,10 135:25 148:1,25 149:2 195:13,21 205:17 207:6 210:10 224:7</p> <p><b>health</b> [2] 34:8 193:23</p> <p><b>hear</b> [1] 32:1</p> <p><b>heard</b> [17] 13:16,24 19:22 79:16 87:14 89:19 93:25 94:5 121:10,17 128:16 137:25 150:9,11 199:24 244:24 256:4</p> <p><b>hearing</b> [1] 256:4</p> <p><b>heat</b> [1] 145:6</p> <p><b>heavier</b> [2] 244:13 245:6</p> <p><b>heavily</b> [1] 170:16</p> <p><b>heavy</b> [2] 86:20 248:7</p> <p><b>height</b> [5] 48:16 147:16 147:22,23 158:22</p> <p><b>held</b> [3] 3:13 61:20 150:17</p> <p><b>heli</b> [7] 67:7,25 68:7,9,10 68:12 69:1</p> <p><b>helicopter</b> [68] 4:25 5:13 13:19 17:7 21:4,18 22:19 24:15 26:5 27:20 29:5 32:20 33:9 34:22 35:17 35:22 37:6 44:6,15,18 44:21 45:23 47:5 52:11 54:8 55:1,11,12 59:14 62:13 66:20 67:6,15 71:6 71:15,18 94:9 116:8 122:16 136:20 145:11 152:24 153:14 165:10 171:22 172:2 173:5 176:21 179:6 184:7 189:15 190:3,9 191:4 212:10 214:21 226:5 227:10,12 228:13 230:6 230:12 232:13,19 244:12 245:24 248:25 251:2</p> <p><b>helicopters</b> [3] 50:21 189:23 234:18</p> <p><b>heliport</b> [19] 58:11 67:5 67:17 68:1,4 71:14,20 88:18,21,23 117:25 127:23 140:11 145:12 189:14 207:19,24 221:21 225:2</p> <p><b>Helly</b> [62] 1:4,8,18 3:1,3 3:12,14,18 4:5,15 6:5,7 6:13,23 7:1,1,13,19,21 8:2,8,25 9:14 10:1 23:13 51:2 67:20 68:16 110:3 128:23 129:16 132:5 135:3 137:9 142:17 146:7 169:4,5,9,16 172:24 180:1 189:21 190:20 193:5 196:16 201:4 206:25 207:8,17 218:20 222:20 232:9 233:18 235:23 237:8,22 240:1,5 241:10</p> <p><b>Hansen's</b> [2] 153:11 236:12</p>	<p>233:18 235:23 236:12 237:8,22 240:1,5 241:10</p> <p><b>helps</b> [1] 97:9</p> <p><b>hereby</b> [1] 256:2</p> <p><b>HH009</b> [1] 103:22</p> <p><b>HH030</b> [1] 101:10</p> <p><b>Hibernia</b> [7] 29:11 55:4 56:4,19 80:6 203:21 206:12</p> <p><b>high</b> [7] 87:11 100:1 112:12 120:25 136:3 163:9 254:19</p> <p><b>higher</b> [7] 49:18 116:6,6 157:15,22 160:4 213:6</p> <p><b>highlight</b> [1] 126:23</p> <p><b>hinder</b> [3] 136:20 151:2 152:23</p> <p><b>hindsight</b> [1] 162:15</p> <p><b>hire</b> [1] 222:21</p> <p><b>hired</b> [1] 222:19</p> <p><b>hires</b> [2] 222:16,18</p> <p><b>historical</b> [1] 90:13</p> <p><b>Historically</b> [1] 26:4</p> <p><b>hitch</b> [1] 58:18</p> <p><b>HMDC</b> [1] 202:21</p> <p><b>hoist</b> [1] 249:1</p> <p><b>hold</b> [3] 40:5 95:10 182:6</p> <p><b>holds</b> [1] 102:12</p> <p><b>hole</b> [1] 166:2</p> <p><b>home</b> [3] 15:6 219:1,10</p> <p><b>homing</b> [3] 184:17,19 184:21</p> <p><b>honest</b> [1] 201:19</p> <p><b>hood</b> [18] 47:18 62:2 73:21,25 93:20 120:13 124:17 125:1 138:22,22 140:21 148:24 149:1 196:5 210:10,13 211:9 223:10</p> <p><b>hoodie</b> [2] 62:1 125:2</p> <p><b>hoods</b> [1] 141:4</p> <p><b>hope</b> [2] 4:7 126:10</p> <p><b>hopefully</b> [2] 76:24 77:2</p> <p><b>horizon</b> [1] 153:12</p> <p><b>hose</b> [1] 124:1</p> <p><b>hour</b> [21] 108:12,16 112:14 113:5 121:11 212:7,13,16 213:13,13 213:21 215:1,3,7,17 245:23 248:3,22 249:4,9 250:23</p> <p><b>hours</b> [2] 100:10 159:19</p> <p><b>HSEQ</b> [1] 205:21</p> <p><b>HTS-1</b> [16] 125:20,23 126:24 142:14,14,23,25 143:3,21 144:9,14,20 146:20 149:8 230:20,24</p> <p><b>HTS1</b> [11] 216:24 217:18 217:22 218:13,25,25 219:5 221:11,14 223:9 223:11</p> <p><b>HTS1's</b> [1] 222:5</p> <p><b>hub</b> [1] 112:5</p>	<p><b>HUEBA</b> [23] 61:13 66:13 71:13,17 75:22 76:2,8 77:14 78:12,19 82:8 96:14 106:2 176:6,11,22 177:3,13 180:19 232:10 233:10,14 234:4</p> <p><b>HUEBAs</b> [4] 62:3 87:1 87:7 89:3</p> <p><b>huge</b> [1] 251:4</p> <p><b>human</b> [4] 39:20 41:7 41:19 108:24</p> <p><b>hung</b> [6] 5:10 208:20 209:1,6,11,14</p> <p><b>Husky</b> [13] 29:12 56:6 80:10 98:12,12 202:24 204:3 205:19,19 206:1,3 206:5,7</p> <p><b>Husky's</b> [1] 204:14</p> <p><b>Hussey</b> [3] 220:3 221:20 224:23</p> <p><b>Hussey's</b> [1] 225:3</p> <hr/> <p style="text-align: center;"><b>-I-</b></p> <hr/> <p><b>i.e</b> [6] 44:12 135:25 141:4 145:2 165:23 230:11</p> <p><b>identical</b> [1] 42:24</p> <p><b>identification</b> [1] 207:15</p> <p><b>identified</b> [7] 69:18 70:21 104:14 143:1 204:21 220:1 237:17</p> <p><b>identify</b> [1] 105:17</p> <p><b>identifying</b> [1] 132:11</p> <p><b>idiosyncrasies</b> [1] 251:22</p> <p><b>ignoring</b> [1] 251:25</p> <p><b>imagine</b> [1] 81:8</p> <p><b>immediately</b> [7] 111:18 123:16 130:17 131:15 132:9 137:2 138:9</p> <p><b>immersed</b> [1] 157:19</p> <p><b>immersion</b> [21] 30:8 33:10 34:21 46:11,13,16 47:4,8 48:12 62:13,18 111:10 149:25 150:3,14 213:17 214:11,13,15 226:4 230:4</p> <p><b>imminent</b> [1] 126:12</p> <p><b>impact</b> [1] 132:4</p> <p><b>impede</b> [3] 44:18 153:3 245:16</p> <p><b>implement</b> [1] 245:13</p> <p><b>implementation</b> [1] 206:3</p> <p><b>implemented</b> [2] 89:17 129:22</p> <p><b>implicit</b> [1] 202:23</p> <p><b>imply</b> [1] 180:10</p> <p><b>important</b> [6] 85:8 117:4 127:11 136:16 146:8 150:23</p> <p><b>impossibility</b> [1] 81:10</p> <p><b>impossible</b> [2] 145:1 152:14</p>	<p><b>impression</b> [3] 126:25 224:1,2</p> <p><b>improve</b> [5] 128:24 129:16 153:12,14 244:23</p> <p><b>improvement</b> [1] 167:6</p> <p><b>improvements</b> [2] 170:17 177:25</p> <p><b>in-bound</b> [2] 67:12 71:19</p> <p><b>in-water</b> [1] 41:8</p> <p><b>inbound</b> [3] 127:14,24 128:3</p> <p><b>Inc</b> [2] 256:12,14</p> <p><b>inch</b> [3] 86:12 164:21 165:2</p> <p><b>inches</b> [3] 164:17,20,21</p> <p><b>incident</b> [9] 110:5,6,25 132:9 142:11 150:22 162:16 193:11 194:2</p> <p><b>incidents</b> [2] 124:10 129:24</p> <p><b>include</b> [10] 15:25 20:12 179:5 190:9 192:16 204:19 234:22 239:1,3,8</p> <p><b>included</b> [2] 239:5,7</p> <p><b>includes</b> [2] 30:5 239:21</p> <p><b>including</b> [6] 32:19 55:4 119:20 139:24 209:20 239:21</p> <p><b>incorporated</b> [1] 73:10</p> <p><b>increase</b> [2] 157:18 214:18</p> <p><b>increased</b> [1] 61:17</p> <p><b>increasing</b> [2] 183:21 220:8</p> <p><b>independent</b> [3] 17:19 84:25 156:17</p> <p><b>indicate</b> [4] 16:1 53:3 106:23 214:16</p> <p><b>indicated</b> [19] 65:9 72:11 77:12 78:11 80:15 81:15 97:14 122:21 137:1 155:14 157:16 183:17 184:5,10 195:5 203:4 218:9 240:23 242:5</p> <p><b>indicates</b> [2] 173:1 213:3</p> <p><b>indicating</b> [3] 130:16 184:16 196:17</p> <p><b>indication</b> [5] 88:17 91:14 132:20 146:23 168:9</p> <p><b>indications</b> [1] 200:9</p> <p><b>individual</b> [20] 12:21 20:15 39:10,15,18 64:20 65:24 95:14 173:1 183:15 220:12,17 223:22 236:16 237:23 238:3,5 239:15 240:5,11</p> <p><b>individuals</b> [4] 193:8 196:6 215:20,20</p> <p><b>indoors</b> [1] 145:12</p> <p><b>industrial</b> [6] 6:12,14 7:8 8:1 31:15 32:8</p> <p><b>industry</b> [7] 29:3 31:13 34:10 129:14 135:1 240:10 241:16</p>
---	---	--	--	--

<p><b>infiltrate</b> [1] 109:12  <b>inflatable</b> [18] 10:22          26:4,6,10,25 27:2 44:13          45:5 51:22,23 52:11          94:25 96:10 97:4 123:12          179:25 180:2 209:21  <b>inflatables</b> [1] 36:11  <b>inflate</b> [1] 45:6  <b>inflated</b> [4] 26:25 97:5          106:21 123:13  <b>inflates</b> [1] 97:8  <b>inflation</b> [12] 27:1 94:22          94:23 96:9,10 97:1,6          102:9,13 106:15,20          209:20  <b>inflow</b> [2] 211:22 213:11  <b>information</b> [18] 33:23          56:24 57:8,11 69:7 76:2          90:14 91:5 115:22 162:24          166:25 186:2 196:7,17          204:2 241:4 245:18          249:15  <b>infrequently</b> [1] 239:9  <b>ingress</b> [20] 64:3 108:4          152:5 156:25 157:13,14          213:17,21,23 214:4,8,10          214:14,15,19 217:5,23          217:24 247:17 248:11  <b>inherent</b> [3] 44:12 47:9          230:10  <b>initial</b> [4] 91:4 107:15          142:2,4  <b>initiated</b> [3] 116:20          128:23 155:17  <b>initiative</b> [1] 155:10  <b>injuries</b> [1] 152:8  <b>inner</b> [3] 62:1 124:13          125:2  <b>innovative</b> [1] 158:1  <b>input</b> [2] 36:6 38:24  <b>Inquiry</b> [1] 153:13  <b>inside</b> [7] 37:7 44:25          47:19 116:5,8 124:17          254:2  <b>insight</b> [1] 166:21  <b>inspect</b> [1] 127:15  <b>inspected</b> [1] 209:25  <b>inspection</b> [10] 12:15          101:5 103:17 106:11,12          107:9,16 123:19 124:2          125:5  <b>inspections</b> [6] 12:20          15:15 71:22 190:4 211:2          211:2  <b>inspector</b> [3] 107:3,14          107:18  <b>inspectors</b> [1] 107:8  <b>installation</b> [3] 67:16          68:24 208:22  <b>installations</b> [2] 218:16          218:20  <b>installed</b> [4] 66:17 102:5          103:4 123:19  <b>instance</b> [7] 140:21          195:15 207:2 214:3</p>	<p>215:10 219:23 220:1  <b>instances</b> [1] 224:16  <b>Institute</b> [2] 128:17          255:13  <b>institutes</b> [1] 85:23  <b>institutions</b> [1] 31:15  <b>instructed</b> [2] 87:11          120:13  <b>instructors</b> [1] 209:10  <b>instructor</b> [1] 32:21  <b>insulated</b> [2] 62:24          160:6  <b>insulating</b> [2] 254:16,17  <b>insulation</b> [1] 41:21  <b>integrate</b> [1] 88:19  <b>integrated</b> [7] 26:18,20          61:13 62:3 75:9 177:13          179:22  <b>integration</b> [1] 78:12  <b>integrity</b> [5] 99:10 152:4          159:10 187:9 242:9  <b>intelligence</b> [1] 83:24  <b>intend</b> [2] 4:10 83:5  <b>intended</b> [2] 66:3 108:1  <b>intent</b> [2] 49:8 180:15  <b>intention</b> [1] 149:7  <b>interaction</b> [4] 35:8,9          85:22 130:25  <b>interactions</b> [1] 131:2  <b>interest</b> [1] 159:5  <b>interesting</b> [1] 159:15  <b>interests</b> [1] 34:9  <b>interfere</b> [2] 70:17          236:24  <b>interior</b> [1] 103:2  <b>internal</b> [11] 18:2,7,23          61:25 100:4 101:17 102:7          124:23,25 144:20 146:24  <b>internally</b> [1] 18:17  <b>interpreted</b> [1] 162:21  <b>intervention</b> [6] 111:23          112:1,10 113:13 125:15          251:18  <b>introduced</b> [4] 21:8          24:14 115:13 138:19  <b>introduction</b> [1] 247:24  <b>inventory</b> [3] 156:5,7          178:11  <b>investigate</b> [3] 123:15          152:22 205:16  <b>investigated</b> [2] 88:8          237:17  <b>investigation</b> [3] 115:15          152:10 199:19  <b>involve</b> [3] 34:13 161:10          176:22  <b>involved</b> [21] 3:22 4:20          30:24 31:5 34:16,19 35:7          38:20 52:15 53:4,4 115:4          133:10 145:15 155:5          161:16 163:7 170:10          237:22 239:10 252:6  <b>involvement</b> [6] 4:21</p>	<p>33:18,19,24 36:1 207:13  <b>involves</b> [1] 24:18  <b>involving</b> [1] 128:11  <b>ISO</b> [13] 14:16,25 15:1,5          15:8,18,21 16:1 18:18          159:21 160:1,5,10  <b>issuance</b> [1] 137:17  <b>issue</b> [28] 25:6 71:16 79:1          91:13 98:11 104:18          107:24 110:20 111:1          127:22 128:10 145:20          152:20 161:2 163:12          179:18 189:16 190:4          194:20 195:25 196:9          206:21 207:6 224:19          243:23 251:4,5 252:1  <b>issued</b> [8] 28:20 51:15          79:25 80:2 97:15 107:17          115:18 126:20  <b>issues</b> [38] 5:4 40:22 44:7          46:7 47:3 88:1,12 103:10          110:9,14 111:23 113:12          113:15 117:5 121:21          125:14 127:18,21 130:2          134:1 138:18 142:19          161:11,15 192:5,10,12          192:16,19,20,22 194:7          196:21 197:4 210:4,7,14          210:17  <b>issuing</b> [1] 88:25  <b>it'll</b> [2] 95:9 181:23  <b>item</b> [3] 143:9 152:23          189:8  <b>items</b> [8] 20:12 73:17          79:17 85:4 98:5 103:9          150:20 205:23  <b>itself</b> [3] 23:1 39:2 241:11</p>	<p style="text-align: center;"><b>-K-</b></p> <p><b>Kate</b> [2] 225:10,16  <b>keep</b> [12] 24:25 65:11          69:19 97:10 100:19,21          100:22 112:15 121:13          170:25 193:2 221:22  <b>keeps</b> [1] 100:14  <b>key</b> [3] 29:21 93:9 173:13  <b>kilometers</b> [1] 248:3  <b>kind</b> [12] 13:11 23:8 70:9          82:4 93:11 134:17 135:16          143:8 152:20 163:18          206:8 210:15  <b>kinds</b> [5] 23:9 88:12          138:5 158:16 160:18  <b>knowing</b> [2] 81:23 177:7  <b>knowledge</b> [10] 36:20          76:11 88:11 139:15 155:6          178:11 180:10 229:4          234:3 235:4  <b>known</b> [6] 60:16 62:17          107:3 180:14,15 226:14</p> <p style="text-align: center;"><b>-L-</b></p> <p><b>lab</b> [1] 220:20  <b>label</b> [2] 7:18 86:12  <b>labelled</b> [5] 86:11 110:9          113:19 142:21,22  <b>Laboratory</b> [2] 36:17          36:23  <b>Labrador</b> [7] 22:2 54:6          55:3,20 56:14 153:16          256:6  <b>lack</b> [2] 75:3 236:16  <b>ladders</b> [1] 41:11  <b>ladies</b> [1] 1:3  <b>land</b> [2] 67:6 112:18  <b>landing</b> [3] 118:15          197:24 198:24  <b>language</b> [1] 194:12  <b>large</b> [31] 70:16 72:18,19          91:8,23 92:3,10,17,19          97:16 115:5 163:13,13          163:16,18,23,23 186:22          195:13,20 207:7 210:10          210:11 221:9 250:9,10          250:14,19 251:8,20,22  <b>larger</b> [16] 54:16 59:3          63:20,25 64:2,4 70:23          91:2,11,15,22 117:2          140:21 141:8 163:17          195:14  <b>larges</b> [2] 90:23,23  <b>largest</b> [2] 64:12,15  <b>Larry</b> [3] 32:16 35:12          158:6  <b>Larry's</b> [1] 36:3  <b>last</b> [12] 32:16 41:17          72:15 81:1 90:14 103:21          127:9 136:15 157:4          160:22 165:4 205:14  <b>lat</b> [1] 185:3  <b>late</b> [2] 174:10,12</p>	<p><b>latest</b> [8] 15:1 21:22          22:20 25:21 27:23 28:23          97:18 172:22  <b>launch</b> [1] 88:8  <b>lawyer</b> [1] 154:22  <b>layer</b> [1] 254:2  <b>layman</b> [1] 46:4  <b>lead</b> [2] 136:7 255:14  <b>leading</b> [1] 148:6  <b>leads</b> [1] 251:7  <b>leak</b> [5] 71:23 106:17,19          107:23 209:21  <b>leakage</b> [26] 108:7,8,13          108:15,16,25 114:22,24          115:6,12,12 121:7 157:11          157:11,18 158:19,19          159:18,19,20,24 160:3,4          212:3 213:3 214:12  <b>leaks</b> [2] 106:23,24  <b>learn</b> [1] 191:14  <b>leasing</b> [1] 17:8  <b>least</b> [2] 217:12 249:10  <b>leave</b> [4] 112:18 115:19          116:10 229:17  <b>leaves</b> [1] 142:25  <b>leaving</b> [2] 68:14 124:3  <b>left</b> [7] 61:11 66:15 81:4          83:8 105:12 126:25 219:5  <b>left-hand</b> [1] 8:9  <b>leg</b> [9] 62:19 70:14,15          143:14 147:9,11,13,14          166:3  <b>legs</b> [1] 69:16  <b>leisure</b> [3] 6:9 7:1,6  <b>length</b> [9] 40:15,21 70:14          143:14,14 144:22 147:11          148:16 164:16  <b>less</b> [12] 15:6,7 47:23          157:18,20 158:23 165:22          213:3 238:22 243:2,25          246:1  <b>letter</b> [6] 79:19,25 80:10          81:5,8 82:23  <b>letters</b> [2] 130:1,5  <b>level</b> [5] 41:15 44:14          45:25 100:1 254:20  <b>levels</b> [1] 115:13  <b>liaison</b> [2] 34:11 35:12  <b>license</b> [3] 7:11,22,25  <b>licensee</b> [5] 7:7,9,21 8:3          169:10  <b>licensees</b> [1] 169:15  <b>life</b> [36] 8:20 10:21 14:7          24:18 26:6,11,18,20 27:2          27:7,11 30:4,7 36:10          41:9,10,11 51:25 52:5          71:13,16 72:20 73:9 88:7          96:10 97:4 115:9 158:9          179:20,22,25 180:2          189:13,16 191:21 212:11  <b>light</b> [6] 82:8 95:17 96:3          96:6 102:16,21  <b>lighter</b> [3] 243:25 244:10          244:14</p>
--	--	---	--	---

<b>lights</b> [2] 20:12 248:8	208:14	<b>manufactured</b> [2] 156:3 163:25	<b>measure</b> [8] 45:16 108:7 108:13 133:2 210:19 211:5 217:22 228:24	<b>miles</b> [5] 183:15,20 184:2 184:3,7
<b>likely</b> [3] 166:22 167:1,7	<b>loops</b> [1] 40:25	<b>manufacturer</b> [4] 148:6 152:19 213:9 240:11	<b>measured</b> [3] 211:25 213:4 214:10	<b>millimetres</b> [1] 40:24
<b>likewise</b> [2] 202:12 234:11	<b>loose</b> [1] 40:24	<b>manufacturers</b> [4] 34:13 38:18,22 166:14	<b>measurement</b> [4] 135:19,25 136:3 212:3	<b>minimum</b> [6] 44:10 47:9 47:13 49:17 230:10 253:19
<b>limit</b> [1] 20:5	<b>lose</b> [1] 74:5	<b>manufacturing</b> [5] 10:10 11:12,13 38:5 53:11	<b>measurements</b> [10] 40:22 133:4 135:21 136:2 136:4 151:6 201:15 220:14,15 224:14	<b>minor</b> [1] 61:7
<b>limitations</b> [1] 150:19	<b>low</b> [3] 151:17,20 213:18	<b>March</b> [8] 110:6 127:14 128:3 132:3 149:16 162:16 193:11 248:20	<b>measuring</b> [2] 45:21 212:22	<b>minus</b> [3] 96:18 145:6 254:7
<b>limited</b> [10] 4:5 8:25 10:1 37:14 38:1 86:3 119:10 195:4 229:3 239:1	<b>lower</b> [4] 2:24 157:11 214:15 249:11	<b>marine</b> [38] 3:16,23 6:12 7:9 8:1 13:21 14:7 27:25 28:8,13,14 32:19 36:13 36:15 37:1 44:3 46:19 47:24 48:11 49:11,24 55:13 59:19 94:4 128:16 144:25 145:9 151:4 228:7 228:11,15,17 229:7 230:15,24 231:6 242:22 255:13	<b>mechanism</b> [3] 102:10 146:25 149:3	<b>minute</b> [4] 158:23 159:22 244:8 245:8
<b>Limited's</b> [1] 9:14	<b>lubricate</b> [1] 118:17	<b>Mark</b> [7] 1:8,11,15 2:17 168:23 225:10 235:19	<b>medical</b> [1] 88:12	<b>minutes</b> [6] 154:6,12 244:6,16 249:2,4
<b>line</b> [8] 39:3,3 49:6,6,13 62:24 96:16 102:14	<b>lubricated</b> [1] 164:12	<b>market</b> [9] 6:17 7:4 19:5 29:7 54:16 163:6 169:17 169:20 176:21	<b>medium</b> [11] 72:18 138:21 163:13,20,20,21 163:21,22 164:16,17 250:6	<b>mix</b> [1] 223:14
<b>line's</b> [1] 49:7	<b>lucky</b> [1] 204:12	<b>marketing</b> [1] 3:15	<b>mediums</b> [2] 90:18,22	<b>Mobil</b> [1] 54:6
<b>linear</b> [2] 213:20 214:17	<b>lumped</b> [1] 192:16	<b>markets</b> [1] 32:8	<b>meet</b> [15] 39:14 47:12 59:17 63:3 68:13 160:6 170:12,21 226:4 227:12 227:19,20 228:13 231:10 253:19	<b>mobility</b> [5] 41:9 129:6 136:15,15 201:13
<b>liner</b> [17] 12:19 61:19 62:1 96:18,19 101:2 102:8 104:15 106:10 107:1 124:13,15,19 155:12 164:9 253:21 254:12	<b>lunch</b> [5] 154:8,10,17,23 155:12	<b>Marshall</b> [5] 75:14 181:6,8,10 183:2	<b>meetings</b> [5] 35:14 81:12 82:25 177:22 204:24	<b>mode</b> [2] 95:8 181:15
<b>liners</b> [8] 89:2 102:6 125:8,9 217:19,20 253:20 254:7	<b>lying</b> [3] 245:25 246:12 246:20	<b>MARTIN</b> [1] 168:13	<b>meets</b> [1] 227:21	<b>model</b> [1] 21:10
<b>lining</b> [2] 102:7 103:2	<b>lyng</b> [3] 245:25 246:12 246:20	<b>mass</b> [2] 48:16 81:25	<b>members</b> [5] 35:21 37:8 113:18 137:16 245:1	<b>models</b> [2] 172:11 221:17
<b>list</b> [17] 1:17,19 37:8 93:4 138:1 139:19 142:20 168:17 172:11,12 201:12 219:4 224:5,13 238:2,15 238:17	<b>M88</b> [1] 27:21	<b>material</b> [5] 62:19 148:21 230:11 244:9 254:18	<b>membership</b> [1] 38:16	<b>moderate</b> [1] 248:2
<b>listening</b> [1] 79:17	<b>made-to-measure</b> [1] 143:10	<b>materials</b> [4] 10:12 39:13 86:19 103:23	<b>Memorial</b> [1] 255:12	<b>modification</b> [2] 179:14 187:3
<b>listing</b> [1] 204:25	<b>Mah</b> [2] 29:22 133:11	<b>matter</b> [6] 36:2 116:1 196:7,14 220:7 222:6	<b>mentioned</b> [12] 31:4 48:1 61:2 92:20 104:5,9 107:23 151:17 152:12 186:19 250:17 251:14	<b>modifications</b> [2] 174:2 186:20
<b>live</b> [3] 2:21,24 41:16	<b>maintain</b> [11] 12:22 18:11 55:9,11 67:23 71:5 71:7,9 99:9,15,19	<b>max</b> [1] 247:11	<b>met</b> [2] 59:24 172:19	<b>modified</b> [9] 138:20 139:2 141:18 142:22 169:17 218:9 222:23 238:18,19
<b>locate</b> [2] 182:23 208:16	<b>maintained</b> [1] 99:14	<b>maximum</b> [6] 44:16 45:12 47:12 49:18 140:5 154:12	<b>metal</b> [1] 166:3	<b>moment</b> [4] 20:1 93:16 161:2 252:1
<b>located</b> [4] 49:7 75:2 89:2 179:23	<b>maintaining</b> [4] 20:11 29:5 57:22 59:5	<b>may</b> [50] 5:16 13:8 15:5 15:6 36:22 38:13 42:10 43:20 50:12 58:22 70:14 70:16,19 71:1 81:7,9 90:3 93:3 94:10 97:14 98:3,18,24 105:6,7 106:24 114:20 115:17 130:5 134:6,7 136:5,6,6 136:17 139:20,21,22 164:4 169:16 173:15 195:12,21 197:4 199:12 224:18,19 228:4 251:21 251:23	<b>meetings</b> [5] 35:14 81:12 82:25 177:22 204:24	<b>momentarily</b> [1] 101:11
<b>location</b> [7] 11:14 12:17 18:14,15 76:24 140:14 152:1	<b>maintains</b> [1] 106:16	<b>matter</b> [6] 36:2 116:1 196:7,14 220:7 222:6	<b>meets</b> [1] 227:21	<b>Monday</b> [3] 112:17 255:12,18
<b>locations</b> [5] 55:2 83:25 87:5 112:7 140:12	<b>maintenance</b> [56] 3:24 4:17,18,25 5:2 9:19,21 11:6,15,18 12:9,14,21 19:13,17,20,25 20:24 23:3,4,12,13 24:6 25:15 29:4 53:7,10 54:7,13 55:1,7 58:14,20 68:2 71:10,23,24 85:15 99:15 99:20 100:5 101:19 103:9 103:22 104:17,19 105:18 107:10 112:9,10,21,22 124:9 137:21 190:25 210:18	<b>max</b> [1] 247:11	<b>members</b> [5] 35:21 37:8 113:18 137:16 245:1	<b>monitoring</b> [1] 27:16
<b>locator</b> [6] 65:15 66:5 75:11 95:2 180:25 234:14	<b>maintenance</b> [56] 3:24 4:17,18,25 5:2 9:19,21 11:6,15,18 12:9,14,21 19:13,17,20,25 20:24 23:3,4,12,13 24:6 25:15 29:4 53:7,10 54:7,13 55:1,7 58:14,20 68:2 71:10,23,24 85:15 99:15 99:20 100:5 101:19 103:9 103:22 104:17,19 105:18 107:10 112:9,10,21,22 124:9 137:21 190:25 210:18	<b>max</b> [1] 247:11	<b>membership</b> [1] 38:16	<b>monitors</b> [2] 155:1 242:17
<b>locators</b> [1] 185:16	<b>maintains</b> [1] 106:16	<b>maximum</b> [6] 44:16 45:12 47:12 49:18 140:5 154:12	<b>Memorial</b> [1] 255:12	<b>months</b> [7] 105:4,8 106:7 126:16 144:1 209:19 222:9
<b>lock</b> [1] 94:24	<b>maintenance</b> [56] 3:24 4:17,18,25 5:2 9:19,21 11:6,15,18 12:9,14,21 19:13,17,20,25 20:24 23:3,4,12,13 24:6 25:15 29:4 53:7,10 54:7,13 55:1,7 58:14,20 68:2 71:10,23,24 85:15 99:15 99:20 100:5 101:19 103:9 103:22 104:17,19 105:18 107:10 112:9,10,21,22 124:9 137:21 190:25 210:18	<b>may</b> [50] 5:16 13:8 15:5 15:6 36:22 38:13 42:10 43:20 50:12 58:22 70:14 70:16,19 71:1 81:7,9 90:3 93:3 94:10 97:14 98:3,18,24 105:6,7 106:24 114:20 115:17 130:5 134:6,7 136:5,6,6 136:17 139:20,21,22 164:4 169:16 173:15 195:12,21 197:4 199:12 224:18,19 228:4 251:21 251:23	<b>mentioned</b> [12] 31:4 48:1 61:2 92:20 104:5,9 107:23 151:17 152:12 186:19 250:17 251:14	<b>morning</b> [11] 1:3,7,8 2:13,15 5:10 76:18 89:20 204:12 225:19 249:24
<b>locked</b> [1] 95:6	<b>major</b> [2] 13:9 124:22	<b>matter</b> [6] 36:2 116:1 196:7,14 220:7 222:6	<b>met</b> [2] 59:24 172:19	<b>Moss</b> [2] 6:7 256:13
<b>locker</b> [1] 67:1	<b>majority</b> [1] 114:14	<b>max</b> [1] 247:11	<b>metal</b> [1] 166:3	<b>most</b> [4] 26:5 151:3 185:10 253:12
<b>logistics</b> [1] 222:7	<b>make-up</b> [1] 139:16	<b>maximum</b> [6] 44:16 45:12 47:12 49:18 140:5 154:12	<b>meter</b> [3] 108:11 212:11 248:5	<b>mostly</b> [1] 211:8
<b>longer</b> [1] 180:6	<b>makes</b> [4] 42:7 119:4,24 254:18	<b>may</b> [50] 5:16 13:8 15:5 15:6 36:22 38:13 42:10 43:20 50:12 58:22 70:14 70:16,19 71:1 81:7,9 90:3 93:3 94:10 97:14 98:3,18,24 105:6,7 106:24 114:20 115:17 130:5 134:6,7 136:5,6,6 136:17 139:20,21,22 164:4 169:16 173:15 195:12,21 197:4 199:12 224:18,19 228:4 251:21 251:23	<b>meters</b> [1] 212:21	<b>motioning</b> [1] 41:23
<b>longest</b> [1] 212:15	<b>man</b> [3] 182:22 250:11 250:11	<b>matter</b> [6] 36:2 116:1 196:7,14 220:7 222:6	<b>method</b> [15] 45:20 49:25 51:25 61:15 108:3 157:12 158:20 159:20 160:3,5 211:25 213:19 216:6 242:21 247:25	<b>motivation</b> [1] 176:10
<b>look</b> [20] 20:2 28:16 39:2 42:9 43:3,16 138:25 153:6 178:14 185:21 197:9 202:18 207:25 208:6 224:17 233:5 236:18 240:2 246:5 247:12	<b>manage</b> [1] 67:20	<b>max</b> [1] 247:11	<b>methodology</b> [1] 23:23	<b>mouse</b> [1] 4:7
<b>looked</b> [5] 142:17 152:10 208:5 221:10 250:5	<b>managed</b> [1] 68:5	<b>maximum</b> [6] 44:16 45:12 47:12 49:18 140:5 154:12	<b>methods</b> [6] 61:15 160:1 160:8 165:19 167:4 244:21	<b>move</b> [11] 5:21 29:2 66:10 71:4 74:3 77:10 93:16 104:2 129:15,16 136:18
<b>looking</b> [15] 61:12,22 62:6 66:16 105:16 114:23 154:25 157:5 162:15 178:1 196:14 213:16 232:4 239:14 242:16	<b>management</b> [15] 4:15 10:14 14:15,16 15:13,15 15:25 29:12 56:4 80:7 204:5,16,19 205:22,25	<b>may</b> [50] 5:16 13:8 15:5 15:6 36:22 38:13 42:10 43:20 50:12 58:22 70:14 70:16,19 71:1 81:7,9 90:3 93:3 94:10 97:14 98:3,18,24 105:6,7 106:24 114:20 115:17 130:5 134:6,7 136:5,6,6 136:17 139:20,21,22 164:4 169:16 173:15 195:12,21 197:4 199:12 224:18,19 228:4 251:21 251:23	<b>metres</b> [1] 158:23	<b>Moving</b> [1] 41:6
<b>looks</b> [2] 148:19 224:25	<b>manager</b> [3] 3:1 32:17 115:1	<b>mean</b> [28] 26:20 43:15 49:23 58:2 65:6 66:21 72:22 98:3 103:14 115:6 118:3 123:13 128:21 132:18,20,21 145:5 153:5 158:19 167:2 209:3 211:24 214:3,25 221:4 228:22 236:14 246:21	<b>MI</b> [2] 86:2 114:23	<b>Ms</b> [35] 168:11 225:9,10 225:11,15,24 226:9,22 227:4,8,16 228:21 229:11 229:20 230:2,17,25 231:14,22 232:2,7,17,22 233:2,12,17,23 234:2,10 234:21 235:3,9,13 251:10
<b>loop</b> [3] 148:20 208:12	<b>mannequin</b> [3] 41:18 41:19 108:6	<b>means</b> [3] 69:2 138:11 256:7	<b>microphone</b> [1] 77:2	
	<b>manual</b> [1] 172:15	<b>meant</b> [1] 166:19	<b>mid</b> [1] 76:18	
	<b>manually</b> [2] 182:5,8		<b>Mifflin</b> [1] 169:1	
	<b>manufacture</b> [10] 7:18 10:17 14:3 17:3 19:4 20:21,25 28:24 51:3 81:11		<b>might</b> [22] 3:19 5:21 46:4 91:15 93:12 126:25 139:25 153:12 154:2,3,5 154:5 163:22 165:13 168:10 177:25 186:5 194:19 210:11 212:20 224:2 247:20	

255:14 <b>multiple</b> [4] 36:11 49:9 115:11 210:6 <b>multiplier</b> [2] 159:24 213:22 <b>must</b> [21] 18:23 39:13,25 42:16 44:13 45:24 48:8 59:17 64:25 65:6 94:11 160:6 168:25 169:4 175:12 179:4 209:11,14 211:5 217:13 244:6 <b>Mustang</b> [5] 13:14,20 30:1 31:17 37:20 <b>muster</b> [1] 145:10	177:9,10,11 191:19 201:9 222:16,18,21 223:10 241:15 <b>Newfoundland</b> [54] 9:21 11:16 12:9,24 13:2 18:15 22:2 29:8 53:5,8 54:6,10,11 55:3,19 56:2 56:14 65:17 72:7 81:15 83:10 84:5,8 85:19 87:5 87:21 113:3 115:2 116:15 116:23 117:1,2,18 132:6 133:15 140:16,18 142:8 142:16 153:15 163:6 182:12 186:11 205:4 206:17 219:14 221:19 226:12,18 227:2 228:3 229:14,17 256:6 <b>next</b> [41] 6:12 19:14 20:20 21:3 22:14 25:13 29:2 33:5 35:25 46:10 53:20 54:3,24 58:21 84:18 98:24 104:2,20,24 110:8 111:21 114:18 120:12 121:2 123:4 124:11 128:7 150:21,22 150:23 157:25 159:16 172:14 190:2 197:22 200:16 216:24 217:17 230:23 232:3 255:11 <b>nice</b> [1] 209:3 <b>nicely</b> [1] 231:16 <b>night</b> [1] 102:20 <b>NL</b> [1] 256:9 <b>no-fly</b> [2] 138:1 142:20 <b>nobody</b> [4] 127:8 201:13 201:14 207:3 <b>non-fit</b> [1] 197:4 <b>None</b> [1] 189:3 <b>nor</b> [2] 127:22 208:5 <b>normal</b> [4] 224:17,25 242:2 251:1 <b>North</b> [3] 7:8 215:23 246:16 <b>Norway</b> [2] 6:8 7:13 <b>Norwegian</b> [1] 170:9 <b>Norwegians</b> [1] 169:7 <b>nose</b> [8] 74:19,22,24 75:1 75:4,4 96:8 102:4 <b>notations</b> [1] 206:13 <b>noted</b> [5] 127:20,24 205:3 236:15 242:6 <b>notes</b> [2] 41:24 139:1 <b>nothing</b> [3] 199:8 213:24 255:7 <b>notice</b> [5] 65:15 81:1 160:12 164:6 169:9 <b>notified</b> [1] 54:22 <b>notifying</b> [1] 79:25 <b>Notwithstanding</b> [1] 212:20 <b>Nova</b> [55] 2:24,25 9:1,4 9:5,15,19,20 10:3 11:5 11:20 22:9 29:4,6 54:6 54:11,12,13 55:2,5 56:8 56:16 65:16 78:8 81:14 84:8 85:17 87:20 111:22	112:1,4 113:7,13 116:22 116:24 125:12,14 128:21 130:20,21 133:14 142:16 177:7 178:6 181:24 186:11 226:19 227:1 228:3,5 229:13 230:1 251:17 252:8,15 <b>November</b> [9] 1:1 85:20 109:23 110:2,19 178:20 231:19 256:4,10 <b>now</b> [94] 2:3 3:5 4:3 6:25 9:24 12:9 13:4,19 16:23 19:3 21:7 25:23 28:3,3 29:1 33:5 37:6,12 39:2 45:9 47:11,14,15 48:20 53:2 55:15 56:5,14 59:10 61:2,22 64:7 66:19 74:5 76:20 81:1 83:22 84:18 88:19 89:25 93:13,19 99:2 104:23 109:21,21 110:2 111:20 118:21 135:11 137:15 139:14 141:12,24 148:10 149:14 162:15 166:11 168:1,8 173:22 180:9 185:21 186:19 189:7 190:2,19 192:4 198:6 216:15 218:7 218:16 219:8 220:19 221:5 222:17 223:7,15 227:22 229:25 233:9 235:1 237:21 240:14,17 243:24 244:4 245:17 248:17 249:25 250:10,21 251:4 252:1 <b>nowhere</b> [1] 199:11 <b>number</b> [44] 10:3 21:8 22:16 34:25 57:13,14,23 58:11,12 59:1 83:6 89:1 91:21 104:11,16 105:24 109:3 113:21 115:5 126:20 140:5,10 149:21 168:11 169:5 174:19 201:19,23 204:13 207:7 219:12,22 220:8,9,16 221:9,18 222:8 233:8 234:17,25 238:12,25 247:15 <b>numbered</b> [2] 1:19,20 <b>numbers</b> [9] 56:17 83:8 89:3,4 171:1 201:6 213:17 223:7 239:15 <b>nuts</b> [1] 176:3	<b>observers</b> [1] 217:21 <b>obtains</b> [1] 246:10 <b>obviously</b> [47] 4:13 6:9 7:22 21:20 26:15 36:3 38:14 44:23 48:9 54:12 58:13 60:14 61:19 71:9 78:8,13 81:10,23 82:23 82:24 83:19 84:25 86:18 89:7 91:5 94:8,18 112:9 116:3 121:12 125:15 127:9 136:20 147:21 150:20 153:5 159:12 164:1 196:3 209:3 220:14 224:11,13 236:14 245:13 248:6 252:14 <b>occasion</b> [1] 152:1 <b>Occupational</b> [1] 193:22 <b>occur</b> [2] 162:17,18 <b>occurred</b> [1] 248:20 <b>occurs</b> [1] 245:20 <b>ocean</b> [1] 248:7 <b>October</b> [2] 34:3 125:11 <b>odd</b> [1] 140:13 <b>oddly</b> [2] 224:3,5 <b>off</b> [33] 67:8 68:4 73:6,17 75:4,10,22 101:21 103:4 105:10 106:9 107:12 116:5 118:15 120:18,20 122:13,14 132:21 134:19 135:19 144:9 148:5 193:2 197:24 198:23 203:14 205:16 206:16 223:3 239:17 245:6 250:24 <b>offer</b> [5] 62:21 111:16 153:4 253:23 254:19 <b>offers</b> [1] 34:5 <b>office</b> [7] 2:25 7:6 9:16 10:2 139:20 140:1 239:7 <b>official</b> [1] 125:20 <b>offshore</b> [62] 11:21 12:16 12:19,23 22:1 53:13 55:2 57:2,13,24 58:12,18 59:5 66:21 67:2,16,25 68:7 68:12 71:15,18 89:5,7 100:9 104:19 112:15 113:3 116:15 117:3,18 137:4 138:11 139:21,23 145:13 153:15 165:10 188:12 189:15,17 208:22 219:1,3,7,9,10,14 220:16 221:19 228:9 232:14 239:3,6,8,9,12,22 243:18 246:10 247:20 250:9,21 <b>often</b> [7] 125:16 138:19 164:7,9 209:16 243:20 246:8 <b>oil</b> [2] 50:8 253:13 <b>old</b> [1] 166:19 <b>older</b> [2] 21:19 173:7 <b>once</b> [12] 16:22 41:1 69:18 100:11 101:1 112:16 125:4 139:21 140:1 148:25 210:23 214:21 <b>one</b> [116] 6:8 17:1 18:18 20:20 26:3 38:16 39:10	39:12 43:10 44:2,15 46:7 47:13 49:2,5,11,17 50:5 50:8,12 51:9 63:1 65:16 65:16 70:25 71:21 73:16 73:19 75:16 77:11,12 80:16,18 82:3,5 89:11 89:17,20 90:1 93:2 95:3 95:4 97:14 98:10 100:11 101:9 105:5 106:14 107:2 108:16,25 110:21 112:19 114:18 117:9 119:12,18 120:2 123:4,22 124:11 124:12,13 125:4 127:9 136:9 144:18,19 146:20 146:24 152:1,1 153:18 153:25 154:5,22 159:17 160:12 161:25 163:7,21 164:20 165:5,23,25 172:11 176:13 177:11 178:10 182:7 183:5 184:19 195:17 204:15 210:4 212:9,21 213:21 219:6 220:3 222:3,4,16 223:25 224:23 225:18 227:24 232:18,19 246:3 246:14 248:21 249:25 250:14 251:11,23 <b>ones</b> [4] 153:25 227:11 233:3 244:1 <b>ongoing</b> [3] 25:7 117:24 142:14 <b>onshore</b> [1] 68:6 <b>onto</b> [1] 153:18 <b>onwards</b> [1] 15:21 <b>open</b> [10] 5:6 38:12,14 79:23 101:23 115:24 116:2,4,11 182:6 <b>open/closed</b> [1] 115:23 <b>opening</b> [1] 242:10 <b>opens</b> [1] 48:18 <b>operate</b> [3] 58:15 94:22 119:25 <b>operated</b> [1] 9:4 <b>operates</b> [1] 8:14 <b>operating</b> [3] 84:22 97:24 205:5 <b>operation</b> [8] 12:5 88:20 112:4 116:25 117:1,2 228:6 252:15 <b>operational</b> [3] 3:15 181:14 228:1 <b>operations</b> [10] 3:1 9:15 10:13 11:23 56:6 87:6 88:20 102:20 205:20 206:15 <b>operator</b> [17] 56:9,12 59:16 83:15,20 85:2,6 98:23,25 99:13 130:15 130:20 131:11 180:14 188:6,11 236:15 <b>operators</b> [59] 3:23 28:11 29:11 34:14 38:22 53:19,20 54:5 55:6 56:3 58:10 60:13 65:6,23 68:23 69:18 70:22 78:10 80:4,15 82:24 84:25 86:8 87:12 98:16 110:11 115:16 116:23 117:19
<b>-N-</b>		<b>-O-</b>		
<b>naked</b> [1] 224:16 <b>name</b> [7] 1:13 8:19 31:21 89:5 113:24 168:17 252:9 <b>named</b> [1] 190:5 <b>names</b> [4] 13:17,24,25 251:15 <b>NASA</b> [1] 30:5 <b>nature</b> [6] 119:8,23 164:3 235:25 236:4 241:24 <b>nautical</b> [4] 183:15,20 184:3,7 <b>Nautilus</b> [3] 5:13 8:4,10 <b>nearly</b> [1] 144:25 <b>necessarily</b> [2] 47:23 164:8 <b>necessary</b> [5] 57:8,11 166:17 167:13 219:13 <b>neck</b> [7] 27:4 74:10 75:20 94:20 103:3 136:4 162:12 <b>need</b> [16] 41:14 42:11 59:11 68:2 70:15 71:1 104:23 112:9 133:2 171:16 176:11 177:3 207:21 211:20 227:23 250:9 <b>needed</b> [5] 78:1 103:11 114:11 122:4 207:15 <b>needs</b> [2] 93:16 121:12 <b>negotiated</b> [1] 85:16 <b>negotiation</b> [1] 85:11 <b>neither</b> [1] 208:5 <b>neoprene</b> [1] 43:14 47:10 61:23 101:24 102:25 122:15,15 148:24 149:1 150:14 210:15 <b>neutons</b> [7] 45:14,16,19 47:11 49:13,14,16 <b>neutral</b> [6] 120:14,17,24 121:8,22,25 <b>never</b> [3] 91:20 201:9 239:6 <b>new</b> [33] 21:8 25:16,21 28:24 78:3,15 85:24 112:2 123:19 128:1 132:14 137:19 138:19 143:2 159:13 164:8 165:11 166:9,13 167:13 170:22 172:20 175:19	<b>next</b> [41] 6:12 19:14 20:20 21:3 22:14 25:13 29:2 33:5 35:25 46:10 53:20 54:3,24 58:21 84:18 98:24 104:2,20,24 110:8 111:21 114:18 120:12 121:2 123:4 124:11 128:7 150:21,22 150:23 157:25 159:16 172:14 190:2 197:22 200:16 216:24 217:17 230:23 232:3 255:11 <b>nice</b> [1] 209:3 <b>nicely</b> [1] 231:16 <b>night</b> [1] 102:20 <b>NL</b> [1] 256:9 <b>no-fly</b> [2] 138:1 142:20 <b>nobody</b> [4] 127:8 201:13 201:14 207:3 <b>non-fit</b> [1] 197:4 <b>None</b> [1] 189:3 <b>nor</b> [2] 127:22 208:5 <b>normal</b> [4] 224:17,25 242:2 251:1 <b>North</b> [3] 7:8 215:23 246:16 <b>Norway</b> [2] 6:8 7:13 <b>Norwegian</b> [1] 170:9 <b>Norwegians</b> [1] 169:7 <b>nose</b> [8] 74:19,22,24 75:1 75:4,4 96:8 102:4 <b>notations</b> [1] 206:13 <b>noted</b> [5] 127:20,24 205:3 236:15 242:6 <b>notes</b> [2] 41:24 139:1 <b>nothing</b> [3] 199:8 213:24 255:7 <b>notice</b> [5] 65:15 81:1 160:12 164:6 169:9 <b>notified</b> [1] 54:22 <b>notifying</b> [1] 79:25 <b>Notwithstanding</b> [1] 212:20 <b>Nova</b> [55] 2:24,25 9:1,4 9:5,15,19,20 10:3 11:5 11:20 22:9 29:4,6 54:6 54:11,12,13 55:2,5 56:8 56:16 65:16 78:8 81:14 84:8 85:17 87:20 111:22	<b>O'Brien</b> [35] 168:11 225:9,10,11,15,16,24 226:9,22 227:4,8,16 228:21 229:11,20 230:2 230:17,25 231:14,22 232:2,7,17,22 233:2,12 233:17,23 234:2,10,21 235:3,9,13 251:10 <b>O-ring</b> [1] 95:6 <b>objective</b> [1] 165:14 <b>obligation</b> [4] 189:20 202:11,16 203:10 <b>observations</b> [1] 149:21 <b>observe</b> [2] 158:3 247:8 <b>observer</b> [1] 155:13	<b>observers</b> [1] 217:21 <b>obtains</b> [1] 246:10 <b>obviously</b> [47] 4:13 6:9 7:22 21:20 26:15 36:3 38:14 44:23 48:9 54:12 58:13 60:14 61:19 71:9 78:8,13 81:10,23 82:23 82:24 83:19 84:25 86:18 89:7 91:5 94:8,18 112:9 116:3 121:12 125:15 127:9 136:20 147:21 150:20 153:5 159:12 164:1 196:3 209:3 220:14 224:11,13 236:14 245:13 248:6 252:14 <b>occasion</b> [1] 152:1 <b>Occupational</b> [1] 193:22 <b>occur</b> [2] 162:17,18 <b>occurred</b> [1] 248:20 <b>occurs</b> [1] 245:20 <b>ocean</b> [1] 248:7 <b>October</b> [2] 34:3 125:11 <b>odd</b> [1] 140:13 <b>oddly</b> [2] 224:3,5 <b>off</b> [33] 67:8 68:4 73:6,17 75:4,10,22 101:21 103:4 105:10 106:9 107:12 116:5 118:15 120:18,20 122:13,14 132:21 134:19 135:19 144:9 148:5 193:2 197:24 198:23 203:14 205:16 206:16 223:3 239:17 245:6 250:24 <b>offer</b> [5] 62:21 111:16 153:4 253:23 254:19 <b>offers</b> [1] 34:5 <b>office</b> [7] 2:25 7:6 9:16 10:2 139:20 140:1 239:7 <b>official</b> [1] 125:20 <b>offshore</b> [62] 11:21 12:16 12:19,23 22:1 53:13 55:2 57:2,13,24 58:12,18 59:5 66:21 67:2,16,25 68:7 68:12 71:15,18 89:5,7 100:9 104:19 112:15 113:3 116:15 117:3,18 137:4 138:11 139:21,23 145:13 153:15 165:10 188:12 189:15,17 208:22 219:1,3,7,9,10,14 220:16 221:19 228:9 232:14 239:3,6,8,9,12,22 243:18 246:10 247:20 250:9,21 <b>often</b> [7] 125:16 138:19 164:7,9 209:16 243:20 246:8 <b>oil</b> [2] 50:8 253:13 <b>old</b> [1] 166:19 <b>older</b> [2] 21:19 173:7 <b>once</b> [12] 16:22 41:1 69:18 100:11 101:1 112:16 125:4 139:21 140:1 148:25 210:23 214:21 <b>one</b> [116] 6:8 17:1 18:18 20:20 26:3 38:16 39:10	39:12 43:10 44:2,15 46:7 47:13 49:2,5,11,17 50:5 50:8,12 51:9 63:1 65:16 65:16 70:25 71:21 73:16 73:19 75:16 77:11,12 80:16,18 82:3,5 89:11 89:17,20 90:1 93:2 95:3 95:4 97:14 98:10 100:11 101:9 105:5 106:14 107:2 108:16,25 110:21 112:19 114:18 117:9 119:12,18 120:2 123:4,22 124:11 124:12,13 125:4 127:9 136:9 144:18,19 146:20 146:24 152:1,1 153:18 153:25 154:5,22 159:17 160:12 161:25 163:7,21 164:20 165:5,23,25 172:11 176:13 177:11 178:10 182:7 183:5 184:19 195:17 204:15 210:4 212:9,21 213:21 219:6 220:3 222:3,4,16 223:25 224:23 225:18 227:24 232:18,19 246:3 246:14 248:21 249:25 250:14 251:11,23 <b>ones</b> [4] 153:25 227:11 233:3 244:1 <b>ongoing</b> [3] 25:7 117:24 142:14 <b>onshore</b> [1] 68:6 <b>onto</b> [1] 153:18 <b>onwards</b> [1] 15:21 <b>open</b> [10] 5:6 38:12,14 79:23 101:23 115:24 116:2,4,11 182:6 <b>open/closed</b> [1] 115:23 <b>opening</b> [1] 242:10 <b>opens</b> [1] 48:18 <b>operate</b> [3] 58:15 94:22 119:25 <b>operated</b> [1] 9:4 <b>operates</b> [1] 8:14 <b>operating</b> [3] 84:22 97:24 205:5 <b>operation</b> [8] 12:5 88:20 112:4 116:25 117:1,2 228:6 252:15 <b>operational</b> [3] 3:15 181:14 228:1 <b>operations</b> [10] 3:1 9:15 10:13 11:23 56:6 87:6 88:20 102:20 205:20 206:15 <b>operator</b> [17] 56:9,12 59:16 83:15,20 85:2,6 98:23,25 99:13 130:15 130:20 131:11 180:14 188:6,11 236:15 <b>operators</b> [59] 3:23 28:11 29:11 34:14 38:22 53:19,20 54:5 55:6 56:3 58:10 60:13 65:6,23 68:23 69:18 70:22 78:10 80:4,15 82:24 84:25 86:8 87:12 98:16 110:11 115:16 116:23 117:19

124:12 125:13 130:11 132:10 142:16,17 145:23 146:7 162:25 177:23 186:10,14 193:10,21 202:2 203:17 207:10 208:7 209:5 219:2,8 226:12,19,19 228:4 229:18 230:21,22 231:18 253:1	<b>oversized</b> [1] 236:17 <b>overstretch</b> [1] 210:14 <b>overturned</b> [1] 45:1 <b>overview</b> [6] 4:10,14 14:1 100:1,7 107:7 <b>own</b> [6] 18:23 36:5 58:3 191:16 207:9 252:7 <b>owned</b> [3] 6:19,22 9:4 <b>owner</b> [3] 9:7 202:12,14 <b>owners</b> [1] 72:17 <b>owns</b> [2] 8:3,4	<b>passenger</b> [10] 21:4 22:19 33:9 34:22 47:5 55:1 127:13,20 138:8 226:5 <b>passengers</b> [15] 53:12 66:20 68:13,14 71:17 116:14 117:17,24 118:12 138:18 189:17,22 232:13 252:11,11 <b>passing</b> [2] 231:6,7 <b>past</b> [1] 248:20 <b>pattern</b> [1] 39:6 <b>Paul</b> [1] 146:23 <b>pay</b> [1] 82:6 <b>Peet</b> [1] 256:5 <b>pegged</b> [1] 140:10 <b>pending</b> [2] 126:19 223:17 <b>people</b> [104] 10:3 11:7 11:11 15:5,6 29:21 38:20 41:16,24 49:9 57:13,23 58:3 59:8 69:17 90:7 91:10,21 94:1 112:8 115:10 120:17 122:12,22 122:25,25 127:1,4 131:3 133:2,13,13,14 134:5 135:12 138:1 139:1,5,14 139:16 140:5,7 142:19 142:25 143:5 168:2 191:17 195:10 196:19,23 197:2,3,15,17 198:8,15 199:25 200:14,17,23 201:11 207:7 210:8 218:16 219:5,6 220:16 221:4,9,18 223:2,8,11 223:18 224:1,4,6,6,24 229:6,9 236:7 237:3,4,8 237:16 238:1,4,10,14,18 238:25 239:1,2,3,11,16 239:21 241:5,23 248:6 251:5,14 253:25	110:4 115:14 122:7 136:21 157:9,15 158:12 159:14 160:9 165:21 170:21 187:9 193:3 205:22 231:3 249:16 253:20 254:8 <b>performed</b> [2] 157:3 242:23 <b>perhaps</b> [18] 12:11 13:8 16:23 55:15 71:4 75:16 76:17 77:1 79:10,11 92:25 96:24 104:22 154:3 161:4 168:8 169:2 243:25 <b>period</b> [12] 105:8 113:7 148:7 154:2 158:10 190:21 208:21 211:22 244:8,15 245:8,23 <b>periodic</b> [1] 204:17 <b>periods</b> [1] 7:23 <b>permission</b> [1] 7:16 <b>person</b> [42] 36:4 46:18 58:3,17 64:15 68:12,20 68:21,23 89:4 91:6 92:10 92:13 100:9,12,12,14 112:23 113:25 114:25 115:7 127:25 134:10 136:11,12 137:4 140:1 147:22 149:3 213:12 218:23 220:6,11 224:8 224:16,17,25 244:5 246:20 247:3 249:8 251:23 <b>person's</b> [1] 143:16 <b>personal</b> [11] 17:5 35:7 65:14 66:5 75:11 88:11 95:2 180:25 221:3,20 234:14 <b>personalize</b> [1] 219:24 <b>personalized</b> [1] 222:12 <b>personally</b> [2] 158:6 247:12 <b>personnel</b> [6] 12:23 70:21 112:6 190:20 191:4 252:8 <b>persons</b> [7] 56:15 57:2 59:1 77:2 88:5 162:1 220:9 <b>perspective</b> [5] 32:23 153:11 160:1 237:25 238:4 <b>Petro</b> [9] 56:5,15 114:20 202:24 204:3,6,15 205:1 205:3 <b>PetroCanada</b> [3] 29:15 29:17 127:12 <b>Petroleum</b> [2] 125:12 188:12 <b>PFDs</b> [4] 10:21,22 14:7 36:10 <b>phase</b> [1] 85:11 <b>phone</b> [2] 130:18 218:13 <b>phonetic</b> [1] 87:11 <b>photograph</b> [1] 146:19 <b>physical</b> [2] 136:8 216:3 <b>physically</b> [1] 251:23 <b>pick</b> [8] 12:18 71:14,20	77:4 183:14,19 189:14 221:21 <b>picked</b> [3] 112:21,22 182:16 <b>piece</b> [15] 19:3 41:17 51:12 74:24 85:24 103:21 115:21 116:12 128:7 136:16 150:23 198:14 207:15 208:16 220:15 <b>pieces</b> [9] 10:16 16:3 20:15 39:13,18 63:2 82:12 99:7 152:3 <b>pillow</b> [1] 97:8 <b>pilot</b> [7] 50:20 51:2,3,5,8 232:14,18 <b>pilots</b> [3] 30:6 235:2,5 <b>pinhole</b> [1] 106:24 <b>pinned</b> [1] 45:2 <b>pioneered</b> [1] 158:1 <b>pioneering</b> [1] 159:13 <b>place</b> [10] 35:14 102:12 102:13,15 123:18 158:4 222:17 225:3 245:17 256:5 <b>plan</b> [2] 141:1 187:7 <b>plane</b> [1] 41:12 <b>plans</b> [1] 126:18 <b>plant</b> [1] 11:13 <b>platform</b> [5] 56:19 108:12 228:14,18 229:6 <b>platforms</b> [1] 112:19 <b>PLB</b> [9] 75:19 76:2 82:9 100:22 102:5 106:1 173:14 181:24 235:7 <b>PLBs</b> [9] 20:13 62:2 71:13 87:7 89:3 189:13 234:17 235:1,5 <b>pleased</b> [2] 80:8 224:24 <b>plug</b> [1] 96:8 <b>plus</b> [1] 108:15 <b>POB</b> [1] 56:16 <b>POBs</b> [1] 57:6 <b>pocket</b> [1] 77:14 <b>pockets</b> [1] 96:13 <b>point</b> [27] 5:19,22 15:18 69:12 72:6 77:11 80:16 81:20 105:11 109:1 119:5 132:11 136:3 148:19 152:2 159:15 163:4 176:20 191:24 196:14 220:7 223:17 228:1 244:24 247:18 251:17 255:11 <b>pointed</b> [1] 93:18 <b>points</b> [2] 159:4 235:21 <b>polyurethane</b> [1] 96:16 <b>pool</b> [28] 41:16,17 57:15 57:24 58:9,25 59:7 64:5 83:10 84:5 86:20 90:13 90:15,24 98:15 113:20 123:16 141:10,12 158:24 220:8 223:16 233:10,11 241:23,23 247:9,11 <b>pooled</b> [1] 98:13 <b>pools</b> [1] 86:18
<b>-P-</b>				
<b>P</b> [1] 96:19 <b>pace</b> [1] 3:9 <b>package</b> [2] 65:8 72:10 <b>packed</b> [1] 102:15 <b>page</b> [20] 2:5 4:9 21:3 37:8 48:13 72:15 157:5 159:16 172:14 174:17,18 174:18 183:7 202:9 204:6 204:7,14 214:7 232:3 234:15 <b>pair</b> [1] 62:7 <b>paper</b> [2] 144:16 159:5 <b>paragraph</b> [6] 81:2 157:25 180:25 185:21 189:20 190:2 <b>Paragraphs</b> [1] 202:9 <b>paramedics</b> [1] 152:3 <b>Pardon</b> [1] 187:24 <b>parent</b> [1] 6:22 <b>part</b> [51] 5:5 21:21 30:2 34:1 36:4,6 54:16 56:25 57:21 60:2,23 62:25 63:5 64:11 65:5,8 71:9 72:10 74:10,18 75:7 78:6,19 80:13 81:11 83:21,22 90:12,24 94:12 101:9 128:1 132:8 136:24 144:14 145:18 152:9 153:20 162:13 189:21 194:22 198:13 206:11 207:14 210:18 214:5 228:9 236:22 247:15 248:10 252:17 <b>partially</b> [1] 245:24 <b>participants</b> [1] 160:13 <b>particular</b> [17] 10:16 12:12 15:12 19:3 21:1 26:3 49:2 59:10 68:24 78:2 105:6,16 114:2 221:25 226:1 236:16 255:15 <b>particularly</b> [7] 13:7 35:5 145:20 195:13 210:9 215:21 235:24 <b>partnership</b> [1] 142:15 <b>parts</b> [3] 15:17 42:7 157:7 <b>party</b> [2] 24:16 180:3 <b>pass</b> [5] 41:1,14 119:19 138:8 144:23 <b>passed</b> [2] 129:5 244:21				

<p><b>pop</b> [1] 25:13  <b>population</b> [1] 91:19  <b>portion</b> [5] 74:6 115:9      153:3 214:9,11  <b>position</b> [13] 95:4,6 96:3      101:23 102:17 115:20,21      116:4,11 184:16,22 185:2      185:3  <b>positions</b> [1] 3:22  <b>positive</b> [1] 145:7  <b>possibility</b> [8] 178:9      194:16 196:16,25 200:19      201:17 203:7 249:21  <b>possible</b> [7] 5:21 65:9      94:10 138:24 195:20      222:22 244:1  <b>possibly</b> [5] 128:5      178:10 180:4 249:4      251:10  <b>post</b> [4] 127:10 186:20      194:2 195:8  <b>poster</b> [6] 92:20,21,23      92:23 96:21 97:19  <b>potential</b> [3] 142:18      210:17 236:18  <b>potentially</b> [5] 107:5      112:11 198:25 200:6      239:11  <b>pound</b> [1] 64:15  <b>pounds</b> [2] 45:19 91:7  <b>PowerPoint</b> [5] 2:10 4:4      86:24 123:5,9  <b>practice</b> [2] 4:8 134:25  <b>practise</b> [2] 118:11      199:22  <b>pre-flight</b> [1] 45:4  <b>pre-job</b> [1] 81:12  <b>predecessor</b> [1] 61:3  <b>predicated</b> [1] 243:17  <b>prefer</b> [2] 168:5 224:20  <b>preference</b> [3] 150:11      150:13 168:3  <b>preparation</b> [1] 136:22  <b>prepared</b> [3] 2:11 4:3      125:19  <b>preparedness</b> [1] 124:8  <b>present</b> [2] 159:9 242:8  <b>presentation</b> [7] 1:5      2:10 4:4 19:15 53:20      192:4 199:21  <b>presented</b> [1] 159:7  <b>presenting</b> [1] 242:7  <b>preserver</b> [1] 30:8  <b>preset</b> [1] 116:10  <b>press</b> [4] 94:23,25 95:10      182:6  <b>pressure</b> [2] 106:16      116:5  <b>presumably</b> [1] 175:20  <b>pretty</b> [3] 122:17 175:12      243:21  <b>prevent</b> [1] 121:7  <b>previous</b> [11] 15:19</p>	<p>21:17 60:12,14 89:10      115:2 160:2 173:18      226:13 227:2 243:3  <b>previously</b> [4] 31:18      33:17 156:9,12  <b>price</b> [1] 82:5  <b>primarily</b> [5] 12:17      13:21 46:14,17 63:25  <b>primary</b> [3] 44:2 173:18      176:10  <b>prime</b> [1] 135:24  <b>privacy</b> [2] 224:12,21  <b>Pro</b> [1] 6:13  <b>problem</b> [5] 130:17      199:2 200:2 222:13 223:1  <b>problems</b> [1] 246:14  <b>procedure</b> [1] 125:9  <b>procedures</b> [24] 15:2,22      16:9 20:24 23:4,12,13      23:17,18 24:7 25:15      71:10,24 99:16 100:6      101:19 107:10 123:20      124:3,9 125:5 137:21      190:25 210:18  <b>proceedings</b> [2] 33:15      51:18  <b>process</b> [47] 5:1,6 18:7      19:24 34:16 38:14 60:2      60:23 80:14 117:23 118:4      128:1 129:1,3,18 130:23      132:15,15,23 133:16      136:22,25 137:25 138:17      142:13 145:15 158:15      165:18 166:8 167:3 201:9      201:10 207:1,10 220:22      223:15 236:22 237:22      238:6,15 240:19,22,25      241:4,6,10 242:2  <b>processes</b> [2] 193:23      222:17  <b>procure</b> [1] 138:15  <b>procurement</b> [1] 34:8  <b>produce</b> [4] 69:15 82:3      83:5 161:5  <b>produced</b> [5] 84:2 114:5      114:7 159:8 242:7  <b>producing</b> [1] 175:21  <b>product</b> [30] 11:15 15:23      16:11,14 23:5,15 24:11      24:11,18 25:16 28:24      29:23 32:21,24 36:12      47:10 48:9 52:20 88:9      101:25 105:13 155:11,16      163:25 164:3 165:20      166:7 180:16,22 216:18  <b>product's</b> [1] 118:17  <b>production</b> [6] 11:18      25:21 59:23 81:25 83:2      222:6  <b>products</b> [35] 6:15,16      7:9 8:1,2,6 9:17,18 14:6      14:7 17:5 20:22 21:1      22:17 30:1,3,4,5 31:6,18      31:21 32:18 36:8 43:10      44:3 82:18 102:2 129:17      169:5,14,16,19 171:16      172:24 244:24</p>	<p><b>profile</b> [1] 136:5  <b>program</b> [2] 137:18      157:25  <b>progressive</b> [1] 129:15  <b>project</b> [24] 11:24 29:7      55:4,4 76:12 81:13 85:18      90:15 125:20,23 128:23      142:14,15 143:21 144:14      144:15 148:4 153:5      155:17 176:3 219:24      221:17 226:1 230:20  <b>projects</b> [7] 29:8 55:5,6      55:25 65:24 81:14 83:7  <b>promised</b> [1] 249:6  <b>proof</b> [1] 94:18  <b>proper</b> [4] 123:18 131:18      136:7 138:23  <b>properly</b> [10] 75:6      102:15 120:12,22 138:11      138:15 196:11,19 201:6      218:21  <b>property</b> [1] 80:8  <b>proposal</b> [12] 4:22 28:10      53:21 54:3,9 57:21 77:25      125:13,19 130:21 179:4      234:12  <b>proposals</b> [2] 186:5      231:18  <b>proposed</b> [3] 1:17 64:13      237:18  <b>proposition</b> [1] 251:7  <b>protect</b> [1] 224:12  <b>protected</b> [1] 50:10  <b>protection</b> [12] 32:11      46:18 62:22 74:16 96:18      96:20 111:17 153:4      253:24 254:7,11,20  <b>protective</b> [2] 10:20      31:16  <b>Protexion</b> [6] 8:4,6,10      30:1,3 31:6  <b>protocol</b> [9] 133:16      135:16 136:24 137:15      155:15 191:19,20 217:8      217:22  <b>prototyped</b> [1] 143:2  <b>prototyping</b> [2] 129:1      129:18  <b>proud</b> [1] 163:15  <b>proven</b> [1] 141:5  <b>provide</b> [21] 28:11 36:1      36:6 46:18 48:9 53:22      60:24 71:1 74:22 96:17      96:19 202:16,22,25 204:2      207:22 226:1 232:9,12      233:10,19  <b>provided</b> [6] 155:16      178:6 207:24 232:23,25      233:11  <b>provider</b> [4] 71:16      128:17 177:7 189:15  <b>provides</b> [1] 112:10  <b>providing</b> [3] 179:13      219:3,9  <b>province</b> [2] 11:21 56:10</p>	<p><b>provision</b> [7] 4:24 13:10      54:7,25 57:20 65:14      202:4  <b>public</b> [1] 39:4  <b>publicly</b> [2] 43:11 79:17  <b>published</b> [3] 29:1 34:20      54:5  <b>pull</b> [16] 26:25 29:25 40:5      74:11,12,13 96:9 97:6      105:9 117:20 122:23      147:14 197:7,16 198:19      245:6  <b>pulled</b> [2] 111:18 197:4  <b>pulling</b> [1] 97:5  <b>puncture</b> [2] 123:12,21  <b>punctured</b> [1] 102:11  <b>purchase</b> [1] 82:4  <b>purchased</b> [4] 8:5,6 31:8      82:16  <b>Purchasing</b> [1] 10:11  <b>purely</b> [1] 135:19  <b>purpose</b> [2] 92:21 228:12  <b>purposes</b> [1] 244:11  <b>pursuant</b> [1] 22:16  <b>push</b> [2] 166:12,14  <b>pushing</b> [1] 159:13  <b>put</b> [43] 27:6,6,8 53:21      60:9,21 63:17 74:13 75:1      75:4 86:22 87:12 89:12      94:14 106:20 107:20      108:17 112:14 120:3      123:9 134:22 135:21      141:1 144:17 159:25      162:19 166:1,3 173:14      195:8 198:14,24 201:12      226:12 230:7,9 231:18      237:2,24 238:3,19 244:13      248:25  <b>putting</b> [4] 49:1 140:21      166:7 220:21</p>	<p>57:7,16 58:1,6,24 59:9      59:22 60:6,19 61:1,6      62:5,11 63:7,14,22 64:6      64:17,24 65:13,20 66:2      66:9,18 67:9,19 68:8,15      68:19,25 69:5,11,22 70:8      71:3,25 72:5,13 73:2,7      73:13,22 74:2,21 75:15      76:4,10,16,22 77:9,18      77:24 78:17,23 79:4,8      80:5,19,25 81:17 82:1      82:11,19 83:4,12,16 84:1      84:7,12,17 85:7,21 86:5      86:15,23 87:9,19,24      88:10,16 89:24 90:25      91:12,24 92:5,9,14,18      92:24 93:5,14,24 94:15      95:13,19,24 96:23 97:12      97:20 98:9,17 99:1,6,18      99:23 100:13,18,23 101:6      101:13 103:7 104:4,8,21      105:19 106:4 107:22      108:19 109:5,10,16,20      110:1,13,18 111:8,13,25      113:1,6,11 114:6,10,17      116:17 117:7,12 118:2,7      118:20 119:1,14 120:1,6      120:10 121:14 122:2      123:3,8 124:5,21 125:22      126:2,7,11,15,21 127:5      128:2,8 129:9,23 130:7      130:12,24 131:7,13,23      132:17 133:6,20,25      134:11,15,21 135:2,6,10      135:15 137:6,11,23 138:4      138:13 139:3,9,13 140:3      140:15,19 141:11,16,21      141:25 142:5,10 143:7      143:20,24 144:5,11      145:14,24 146:11,17      147:3,17,24 148:9,15      149:6,13,20 150:8 151:16      152:11,18 153:8,24 154:9      154:15,20 155:18,23      156:2,8,13,22 157:24      158:13,25 160:11,16,24      161:14,20,24 162:5,14      163:10 164:18,24 165:3      166:16 167:9,17 168:19      168:23,24 169:13,21,25      170:5,13,23 171:4,6,8      171:10,12,20 172:6 173:8      173:24 174:7,11,15,22      175:1,11,17 176:4,9,17      177:1,14,20 178:4,13,15      178:19,24 179:3,10 180:8      180:17,24 181:4,20      182:10,15,19 183:1,6,12      183:18,24 184:6,11,15      184:20 185:4,9,14,20,25      186:9,18 187:1,10,16,23      188:2,10,16,22 189:2,6      189:11,18 190:1,8,13,17      191:3,8,12,23 192:3,8      192:21 193:4,12,19 194:3      194:8,15,24 195:7,23      196:13,24 197:8,12,21      198:5,16 199:7,17 200:1      200:11,21 201:3,25 202:8      202:20 203:8,16,22 204:1      204:8,10 205:6,10,18      206:6,19,24 208:4,10,18      208:25 209:9,15,22 210:1</p>
--	--	---	--	--

-Q-

**Q.C** [553] 1:6,11,16,24  
 2:4,9,16,20 3:4,8,17 4:2  
 5:8,15 6:3,18,24 7:10,14  
 8:7,13,18,24 9:6,11,23  
 10:15,23 11:4,19,25 12:4  
 12:8,25 13:5,15,23 14:9  
 14:18,22 15:3 16:5,10  
 16:16,21 17:10,16,21  
 18:4,16,22 19:2,8,21  
 20:17 21:6,14,25 22:6  
 22:11,22 23:6 24:2,8,23  
 25:4,22 26:12,19 27:10  
 27:14 28:2,7,15 29:14  
 29:18 30:10,15,19,23  
 31:3,9,20,25 32:4,12,25  
 33:4,14 34:24 35:4,15  
 36:14,25 37:5,11,19,25  
 38:4,8 39:1,21 40:10,14  
 40:18 41:3,22 42:2,13  
 42:21 43:2,6,12,22 44:4  
 44:19 45:15,22 46:3,9  
 46:25 47:25 48:22 49:19  
 50:2,15 51:4,11 52:2,14  
 52:22 53:1,9,16,24 54:18  
 55:8,14,23 56:7,13 57:3



210:22 211:7,15,18 212:6 212:14,19 213:8 214:2 214:24 215:8,18 216:2,8 216:14,19,25 217:4,10 218:1,6,15 219:11,17,21 221:1,8,15 222:10,25 223:19,24 224:22 225:4 255:9 <b>qualified</b> [1] 60:16 <b>quality</b> [15] 4:15 11:17 14:11,14,16 15:2,13,15 15:22,25 16:9 204:5,15 204:18,19 <b>quantity</b> [1] 90:11 <b>query</b> [1] 188:8 <b>questioned</b> [1] 168:3 <b>questions</b> [29] 5:7 9:25 89:15 116:15 117:16 154:24 161:8,9,10,18,21 161:25 162:19 163:11 167:19,25 168:6,10,14 225:18 231:17 235:11,22 235:24 237:24,25 243:7 243:10 249:7 <b>quick</b> [4] 46:17 202:18 246:1,5 <b>quicker</b> [1] 44:24 <b>quickly</b> [9] 3:5 42:6 91:17,25 135:22 138:24 204:11 247:23 248:1 <b>quietly</b> [1] 131:25 <b>quite</b> [2] 151:20 219:18 <b>quote</b> [1] 54:10 <b>quoted</b> [1] 55:17	96:4 103:5 168:18 225:25 226:3 249:2 <b>real</b> [4] 158:11,15 165:19 191:21 <b>realistic</b> [2] 158:1 159:11 <b>realize</b> [1] 167:11 <b>really</b> [20] 39:9 42:6 62:21 75:9 84:19 85:12 134:19 151:19 163:12 165:6 223:25 224:3 225:17 227:23 232:4 244:5 247:25 249:5 250:7 255:2 <b>reason</b> [7] 114:11 122:10 147:18 193:1 213:10 226:11 229:22 <b>reasonably</b> [1] 250:20 <b>reasons</b> [4] 45:7 70:20 79:18 224:15 <b>receive</b> [3] 71:19 175:3 218:19 <b>received</b> [8] 80:20,23 110:11 114:20 133:1 185:8 196:16 237:13 <b>receivers</b> [1] 183:9 <b>receiving</b> [2] 81:8 82:20 <b>recently</b> [3] 172:1 241:21 241:25 <b>recertify</b> [1] 105:11 <b>RECESS</b> [2] 76:21 211:17 <b>rechecks</b> [1] 107:19 <b>recognizes</b> [1] 172:16 <b>recollection</b> [1] 201:1 <b>recommendation</b> [3] 90:10,11 134:9 <b>recommended</b> [1] 208:19 <b>record</b> [1] 183:13 <b>recreational</b> [2] 32:1,8 <b>rectified</b> [1] 87:17 <b>red</b> [1] 44:2 <b>redacted</b> [1] 79:15 <b>redaction</b> [1] 83:6 <b>refer</b> [4] 68:9 86:25 169:1 211:20 <b>reference</b> [5] 36:22 44:10 48:13 66:19 76:25 <b>references</b> [1] 93:25 <b>referred</b> [2] 138:20 241:20 <b>referring</b> [1] 217:15 <b>refers</b> [1] 28:17 <b>reflective</b> [2] 102:18,19 <b>regard</b> [1] 20:11 <b>regarding</b> [10] 15:12 40:22 87:15 114:22 115:18 116:24 117:4 162:10 176:15 200:9 <b>regards</b> [2] 34:18 52:9 <b>regime</b> [3] 18:19 99:8 135:16 <b>regional</b> [2] 182:2,3	<b>regionally</b> [1] 181:12 <b>registered</b> [1] 14:16 <b>REGISTRAR</b> [1] 1:12 <b>registration</b> [9] 14:25 16:1,19,20 17:2,23,24 18:11 19:4 <b>registrations</b> [1] 15:19 <b>regular</b> [4] 113:20 139:19 239:10 252:17 <b>regularly</b> [3] 204:23 239:2,22 <b>regulations</b> [4] 20:8 22:17 23:24 173:6 <b>regulator</b> [1] 96:15 <b>regulators</b> [4] 38:23 49:5,23 239:8 <b>regulatory</b> [3] 34:8 129:14 188:8 <b>reinstall</b> [1] 107:1 <b>relate</b> [2] 57:14 65:3 <b>related</b> [5] 6:11 13:6 118:15 199:13 254:11 <b>relates</b> [2] 11:21 163:12 <b>relation</b> [1] 66:22 <b>relationship</b> [4] 152:8 156:14 169:9 247:17 <b>release</b> [3] 66:7 94:24 152:25 <b>relevance</b> [3] 10:25 51:18 104:24 <b>relevant</b> [3] 3:19 13:9 56:24 <b>relies</b> [1] 21:4 <b>remarkably</b> [1] 148:16 <b>remember</b> [3] 8:20 243:16 244:2 <b>remembering</b> [2] 129:4 153:13 <b>remote</b> [3] 112:7,20,21 <b>removal</b> [1] 106:10 <b>removed</b> [2] 101:2 106:11 <b>removes</b> [1] 182:7 <b>renewal</b> [3] 7:23 177:21 177:24 <b>renewed</b> [1] 28:22 <b>repairs</b> [5] 71:23 103:15 103:16,20,24 <b>replied</b> [4] 4:23 54:9,16 175:15 <b>reply</b> [3] 54:19 194:14 203:3 <b>report</b> [15] 109:3 127:20 155:1,4 158:21 204:18 204:18,22 205:11,14 213:18 214:7 217:8 242:5 247:23 <b>reported</b> [4] 115:15 127:19,22 212:4 <b>reporting</b> [3] 123:4 204:5,16 <b>reportings</b> [1] 129:25 <b>reports</b> [4] 60:3 156:20 205:1 206:20	<b>representatives</b> [1] 36:2 <b>request</b> [15] 4:22,23 28:10 53:21 54:2,9 60:17 65:6 72:17 133:21 186:4 193:10 217:18 231:17 234:12 <b>requested</b> [15] 28:11 54:4 59:16 73:19 74:18 75:7,13,25 87:2 125:13 202:12,14 203:12,17,18 <b>requests</b> [1] 193:13 <b>require</b> [14] 64:4 69:20 69:21 78:12 103:11 143:9 143:18 159:23 176:22 179:11 186:16 223:22 226:16 240:5 <b>required</b> [34] 19:9 23:7 23:18 28:8 57:1 58:15 61:21 65:11 72:22 73:20 87:6 91:15,22 99:14 116:2 118:12 121:24 122:8,11 139:22 143:13 143:15 144:25 145:22 176:15 216:13 219:4 220:9,19 226:14 229:5 233:1 234:17 252:16 <b>requirement</b> [25] 18:17 21:21 39:14,19 47:12,14 59:11 61:16,18 64:18 65:3 78:6 90:20 99:2 106:5 119:22 170:21 213:6 228:10 229:23 230:12 231:10 232:9,12 234:16 <b>requirements</b> [20] 18:18 25:8 26:16 59:25 73:15 73:15 78:10 97:25 99:8 107:8 129:6,7 150:18 177:9,11 194:23 209:12 228:2 230:9,13 <b>requires</b> [2] 140:22 191:16 <b>rescue</b> [7] 66:8 150:25 181:12,14,24 182:4 248:23 <b>resealing</b> [1] 103:12 <b>research</b> [3] 29:24 31:12 31:15 <b>reserve</b> [1] 79:13 <b>resewing</b> [1] 103:11 <b>resistance</b> [1] 50:9 <b>resolution</b> [1] 206:1 <b>respect</b> [24] 13:10 25:8 35:5 39:7 47:3 64:20 84:21 85:23 88:2 110:4 114:21 122:5 127:12 128:12 144:6 156:24 163:11,19 189:21 195:10 204:4 206:8 210:9 236:2 <b>response</b> [2] 80:18 236:12 <b>responsibility</b> [1] 207:5 <b>responsible</b> [1] 68:20 <b>rest</b> [1] 223:17 <b>restitching</b> [1] 103:11 <b>restrictions</b> [2] 52:13	195:3 <b>result</b> [4] 137:24 190:18 215:6,9 <b>results</b> [10] 18:10 117:13 117:15 155:8 159:7 160:5 161:6,6 213:2 242:7 <b>retail</b> [4] 9:17,18 82:5 82:15 <b>retailers</b> [1] 82:17 <b>retardant</b> [1] 17:5 <b>retrospect</b> [1] 196:15 <b>return</b> [10] 5:5 105:3 128:9 132:8 136:23,25 189:14 207:14 237:21 240:19 <b>returned</b> [2] 71:15 127:17 <b>reusable</b> [1] 74:19 <b>reused</b> [1] 72:4 <b>review</b> [12] 35:24 93:12 166:12,19 167:3 204:22 204:24 205:25 206:16 207:1,10 242:2 <b>reviewed</b> [3] 7:24 18:8 35:18 <b>revision</b> [3] 15:1 97:18 166:20 <b>rework</b> [1] 179:24 <b>RFD</b> [2] 180:2,4 <b>RFP</b> [22] 53:23 54:17,24 54:24 60:10,14 62:24 63:2 73:14 80:14,17 85:5 91:5 175:3,8,16 178:14 178:25 180:9 185:22 188:8 203:4 <b>RIB</b> [1] 32:21 <b>right</b> [46] 1:19 5:10 13:4 27:8 31:10 39:24 41:4 42:14 57:17 61:11 66:16 72:16 75:2 76:20 78:24 82:2,20 84:18 89:2,12 93:13 96:8 97:21 120:11 128:7 154:14 166:11 179:7 184:3 185:16 197:18 210:24 215:22 216:3 219:8 221:11,16 222:13 223:7,15 231:15 234:11 235:1 239:17 250:13 255:17 <b>rigorous</b> [5] 119:9 159:21 160:9 176:15 242:4 <b>rigorously</b> [1] 125:6 <b>rigs</b> [1] 228:8 <b>rise</b> [1] 44:24 <b>Road</b> [2] 18:14 140:14 <b>rod</b> [1] 40:25 <b>Roil</b> [399] 1:4,6,11,16,24 2:4,9,16,20 3:4,8,17 4:2 5:8,15 6:3,18,24 7:10,14 8:7,13,18,24 9:6,11,23 10:15,23 11:4,19,25 12:4 12:8,25 13:5,15,23 14:9 14:18,22 15:3 16:5,10 16:16,21 17:10,16,21 18:4,16,22 19:2,8,21 20:17 21:6,14,25 22:6
--	---	---	---	--

**-R-**

**R** [3] 29:23 133:10,11  
**radio** [1] 95:20  
**raft** [6] 41:10,10,11 115:9  
158:9 212:12  
**rain** [5] 158:8,16 159:3  
248:7,9  
**rainwear** [2] 10:20 14:8  
**rainwears** [1] 17:6  
**raised** [3] 111:23 113:13  
251:10  
**ramped** [1] 252:15  
**RANDELL** [1] 168:23  
**random** [1] 248:5  
**range** [10] 42:17 48:8,16  
91:25 111:5 129:13 143:3  
143:16 183:8 217:19  
**ranges** [1] 135:22  
**rate** [2] 213:12,24  
**rather** [7] 26:22 27:5  
40:15 80:14 113:19  
148:20 168:10  
**ratio** [1] 246:2  
**raw** [1] 10:12  
**re-certified** [2] 58:14  
104:1  
**re-configuration** [1]  
248:25  
**ready** [9] 1:4 72:3 81:9

22:11,22 23:6 24:2,8,23 25:4,22 26:12,19 27:10 27:14 28:2,7,15 29:14 29:18 30:10,15,19,23 31:3,9,20,25 32:4,12,25 33:4,14 34:24 35:4,15 36:14,25 37:5,11,19,25 38:4,8 39:1,21 40:10,14 40:18 41:3,22 42:2,13 42:21 43:2,6,17,22 44:4 44:19 45:15,22 46:3,9 46:25 47:25 48:22 49:19 50:2,15 51:4,11 52:2,14 52:22 53:1,9,16,24 54:18 55:8,14,23 56:7,13 57:3 57:7,16 58:1,6,24 59:9 59:22 60:6,19 61:1,6 62:5,11 63:7,14,22 64:6 64:17,24 65:13,20 66:2 66:9,18 67:9,19 68:8,15 68:19,25 69:5,11,22 70:8 71:3,25 72:5,13 73:2,7 73:13,22 74:2,21 75:15 76:4,10,16,22 77:9,18 77:24 78:17,23 79:4,8 80:5,19,25 81:17 82:1 82:11,19 83:4,12,16 84:1 84:7,12,17 85:7,21 86:5 86:15,23 87:9,19,24 88:10,16 89:24 90:25 91:12,24 92:5,9,14,18 92:24 93:5,14,24 94:15 95:13,19,24 96:23 97:12 97:20 98:9,17 99:1,6,18 99:23 100:13,18,23 101:6 101:13 103:7 104:4,8,21 105:19 106:4 107:22 108:19 109:5,10,16,20 110:1,13,18 111:8,13,25 113:1,6,11 114:6,10,17 116:17 117:7,12 118:2,7 118:20 119:1,14 120:1,6 120:10 121:14 122:2 123:3,8 124:5,21 125:22 126:2,7,11,15,21 127:5 128:2,8 129:9,23 130:7 130:12,24 131:7,13,23 132:17 133:6,20,25 134:11,15,21 135:2,6,10 135:15 137:6,11,23 138:4 138:13 139:3,9,13 140:3 140:15,19 141:11,16,21 141:25 142:5,10 143:7 143:20,24 144:5,11 145:14,24 146:11,17 147:3,17,24 148:9,15 149:6,13,20 150:8 151:16 152:11,18 153:8,24 154:9 154:15,19,20 155:18,23 156:2,8,13,22 157:24 158:13,25 160:11,16,24 161:14,20,24 162:5,14 163:10 164:18,24 165:3 166:16 167:9,17,24 171:6 171:10 178:15 182:21 204:8 249:24 255:7,9	<b>rotators</b> [2] 139:20 239:10 <b>RQF</b> [1] 188:8 <b>rubber</b> [1] 62:7 <b>run</b> [2] 73:6 164:12 <b>running</b> [1] 6:11 <b>runs</b> [1] 115:11  <hr/> <b>-S-</b> <hr/> <b>Sable</b> [7] 11:24 29:7 55:4 81:13 87:5 90:15 125:12 <b>Sackville</b> [1] 2:24 <b>safe</b> [2] 138:23 165:11 <b>safely</b> [1] 157:17 <b>safety</b> [16] 3:16 6:12 7:9 8:2 14:7 30:4 32:19 34:9 36:13,16 44:3 102:16 153:14 193:23 228:24 251:24 <b>SAI</b> [4] 17:13,17,19 18:8 <b>sake</b> [1] 231:6 <b>sales</b> [2] 3:14 4:1 <b>salt</b> [3] 40:6 95:7 96:2 <b>sample</b> [1] 200:3 <b>satellite</b> [3] 182:1,16 185:8 <b>satellites</b> [1] 184:12 <b>save</b> [2] 244:14 245:7 <b>saw</b> [5] 24:13 52:6 54:14 128:20 157:4 <b>says</b> [14] 49:15 65:5 71:5 80:6 87:10 157:25 179:11 186:1 190:2 192:9 199:12 204:15 205:19 234:8 <b>SCA</b> [1] 52:7 <b>scan</b> [2] 17:11 72:17 <b>scanned</b> [3] 106:1,1,2 <b>scenario</b> [1] 158:2 <b>scenarios</b> [1] 159:11 <b>scheduled</b> [1] 204:23 <b>schedules</b> [1] 204:4 <b>science</b> [1] 31:16 <b>scientist</b> [1] 31:13 <b>scientists</b> [1] 34:14 <b>scope</b> [7] 38:24 54:25 55:16 56:20 85:3 98:2,7 <b>Scotia</b> [53] 2:24,25 9:1,4 9:5,15,19,20 10:3 11:5 11:20 22:9 29:4,6 54:7 54:11,12,13 55:3 56:8 65:16 78:8 81:14 84:8 85:17 87:21 111:22 112:1 112:4 113:7,13 116:22 116:25 125:12,15 128:21 130:20,21 133:14 142:16 177:7 178:6 181:24 186:11 226:19 227:1 228:3,6 229:13 230:1 251:17 252:8,15 <b>screen</b> [3] 101:11 161:7 183:4 <b>scroll</b> [2] 157:6 158:22 <b>sea</b> [10] 75:14 181:6,8,10	183:2 215:16 216:9 243:21 246:8,17 <b>seal</b> [26] 43:14 75:4 109:19 117:19 118:14 119:3,4 121:12 122:19 125:3 136:7 138:18,23 163:7 186:23 187:7 197:23 198:10,23 199:2 199:16 200:4 210:13 215:10 236:23 246:19 <b>sealed</b> [3] 200:7,24 245:12 <b>seals</b> [25] 61:20 64:3 108:24 109:15,17,17,19 121:2,4,6,10 122:9,9 134:6 136:14,18 141:6 193:1 195:11 215:15 235:25 236:2,5,14,22 <b>seam</b> [3] 39:11 164:1 165:24 <b>seams</b> [4] 39:12 42:10 109:13 166:1 <b>search</b> [5] 66:7 181:11 181:12,13 182:4 <b>seat</b> [1] 234:18 <b>seatbelt</b> [1] 153:1 <b>seated</b> [2] 94:9 136:13 <b>seats</b> [1] 234:23 <b>second</b> [16] 73:16 81:1 96:15 128:20 147:11 148:8 182:7 227:23 228:7 228:15,19,22 229:4,15 250:20 251:9 <b>secondary</b> [2] 27:6 212:12 <b>seconds</b> [2] 79:22 95:11 <b>section</b> [16] 6:12 39:20 40:3 71:4 157:7,8 158:21 159:6,16 178:25 212:4 231:23 232:3,4,11 234:13 <b>sections</b> [2] 20:9 85:3 <b>see</b> [64] 4:6 5:24 6:25 8:9 13:25 19:25 21:3 22:14 30:24 31:4 32:1 37:1,20 40:21 43:9 47:24 48:17 50:19 61:10 62:23 66:15 70:2 73:5,16 75:13 76:8 77:5 96:25 97:1,15 101:18 105:7 108:23 110:19 115:8 133:21 135:11 146:5 155:20 164:14 167:6 172:14,18 174:19 181:9 191:21 198:1 200:22 211:24 218:8,21 223:12 232:11 234:16 240:2 247:16 251:3,20,20 252:24 253:6 253:17 254:4,23 <b>seeing</b> [6] 131:21 167:15 184:1 189:21 222:18 247:13 <b>seek</b> [3] 23:9,19 188:7 <b>seem</b> [1] 248:17 <b>seldom</b> [1] 139:25 <b>seldomly</b> [2] 22:4 239:8 <b>selecting</b> [1] 60:15 <b>self</b> [5] 47:21 93:21 116:7	254:16,16 <b>sell</b> [1] 19:5 <b>send</b> [3] 24:4 130:16 184:21 <b>senior</b> [2] 31:12 107:2 <b>sense</b> [5] 147:15 170:15 196:18,19 210:9 <b>sensors</b> [1] 96:5 <b>separate</b> [7] 23:5 26:7 26:23 85:1 86:7 107:13 233:6 <b>separated</b> [2] 124:14,19 <b>separately</b> [4] 26:8 104:15 108:14 214:10 <b>September</b> [2] 85:18 124:11 <b>serial</b> [6] 89:1,3,4 104:10 104:16 113:21 <b>series</b> [4] 21:5,5 79:12 141:17 <b>serve</b> [3] 54:15 228:11 229:15 <b>service</b> [33] 5:2,14 10:9 19:15 57:1 58:13 71:6,7 72:3 87:12,18,20 90:15 99:3 103:6,9 104:1 105:10 106:10 107:4,5 107:21 111:18 115:18 116:9 123:23 127:17 132:8 139:22 192:11 207:23 238:20 240:20 <b>serviced</b> [2] 12:1,3 <b>services</b> [2] 34:7 53:22 <b>servicing</b> [2] 57:22 106:6 <b>session</b> [1] 217:21 <b>set</b> [8] 34:18 39:6 95:3 113:24 119:19 137:15 169:4 181:15 <b>setting</b> [2] 33:21 160:23 <b>seven</b> [14] 22:9 48:20 123:23 142:9 163:5 187:17 189:1 190:24 193:8,13 203:20 222:4 223:4 224:9 <b>seven-day</b> [1] 137:17 <b>seven-month</b> [1] 148:7 <b>several</b> [1] 3:13 <b>severe</b> [2] 243:18,19 <b>shall</b> [10] 69:6 71:5,16 186:1 189:12,15 190:2 204:16,19,22 <b>shape</b> [2] 149:2 195:11 <b>shaped</b> [2] 224:4,5 <b>shared</b> [2] 58:9 98:15 <b>sheer</b> [1] 201:19 <b>sheet</b> [4] 103:23,25 144:16 171:24 <b>shelf</b> [2] 105:7,10 <b>shell</b> [2] 104:14 123:14 <b>shield</b> [8] 61:24 74:9,12 74:14 94:20 101:24 103:3 120:14 <b>shift</b> [1] 11:12 <b>shined</b> [1] 102:21	<b>ship</b> [3] 46:20,20 183:14 <b>shoe</b> [1] 70:25 <b>shop</b> [12] 101:2 105:8,12 115:1 137:18,20 140:12 140:13 207:25 218:24 222:18,20 <b>shore</b> [3] 218:18 253:11 253:12 <b>short</b> [4] 70:14 154:2 156:19 175:16 <b>short-term</b> [1] 22:5 <b>shorten</b> [5] 69:16,17 70:15,19 146:25 <b>shortened</b> [1] 231:12 <b>shorter</b> [3] 70:18 147:15 164:17 <b>shortly</b> [2] 80:23 222:5 <b>shoulder</b> [2] 147:12 196:15 <b>shoulders</b> [1] 147:12 <b>show</b> [8] 17:12 24:19 45:13 118:12 124:14 145:7 172:13 213:25 <b>showing</b> [2] 160:7 213:24 <b>shows</b> [2] 95:20 96:4 <b>shy</b> [1] 238:22 <b>sic</b> [2] 155:19 219:12 <b>side</b> [17] 5:11 13:19 25:24 27:5 61:11 66:17 75:21 80:17 94:21 96:14 97:9 98:5 122:14 146:3,9 166:3 203:15 <b>sides</b> [1] 3:15 <b>sign</b> [3] 101:20 103:4 107:12 <b>signal</b> [7] 66:7 181:23 183:20 184:2,22,22 185:7 <b>signalling</b> [5] 66:6 95:9 95:11,15 181:19 <b>signals</b> [1] 95:20 <b>signed</b> [1] 202:1 <b>significant</b> [14] 61:7 85:8,12 97:22 118:21 143:13 151:21 191:16 193:21 194:10 220:5,13 220:16 248:14 <b>significantly</b> [4] 92:12 116:25 120:25 146:5 <b>signing</b> [1] 146:12 <b>signoff</b> [1] 126:5 <b>similar</b> [15] 43:5,12,15 43:16 61:24 80:10 90:4 92:23 93:2 113:7 123:23 148:19 170:20 177:5 252:5 <b>similarly</b> [1] 56:18 <b>simply</b> [3] 67:23 179:13 251:20 <b>simulate</b> [5] 158:11,15 160:18 165:19 247:11 <b>simulated</b> [2] 212:2 242:22 <b>simulation</b> [1] 216:24
---	--	--	--	---

<b>simulations</b> [3] 158:2,3 158:7	<b>socket</b> [1] 136:6	241:9,14,19 242:13,18 242:25 243:6,9	216:13 220:22 226:21 227:13,19,20,21 229:23 246:16	<b>straps</b> [1] 96:12
<b>simulator</b> [4] 247:10 248:4,9,12	<b>soften</b> [1] 164:10	<b>spend</b> [2] 24:24 165:22	<b>standing</b> [2] 26:10 51:21	<b>strategy</b> [1] 187:13
<b>sit</b> [3] 36:8,10 238:19	<b>softer</b> [1] 148:22	<b>spending</b> [1] 166:4	<b>standpoint</b> [1] 198:12	<b>Street</b> [1] 256:5
<b>sitting</b> [5] 5:22 67:1 105:7 223:18 251:3	<b>sole</b> [2] 62:21 253:7	<b>spent</b> [3] 114:23 115:3 158:10	<b>start</b> [24] 4:13 5:3 64:23 72:11 75:23 81:13,24 83:1 85:17 87:4,7,8 95:9 95:11 105:15 106:13 125:20 130:22 148:25 169:3 174:8 181:8,18 233:1	<b>strength</b> [7] 39:12,14 40:4,5 49:12 119:20 165:25
<b>situation</b> [3] 49:17 176:19 219:25	<b>solid</b> [2] 47:10 230:10	<b>splashed</b> [1] 248:15	<b>start-up</b> [1] 5:1	<b>stretch</b> [2] 149:1 215:1
<b>situations</b> [1] 158:16	<b>solution</b> [6] 106:22 129:21,22 142:18 223:12 223:13	<b>split</b> [2] 7:4 43:14	<b>started</b> [21] 82:24 85:20 109:22 110:19 129:17 132:14,23,24 133:3,4 135:19 136:24 143:21,23 144:14 146:6 170:9 193:9 215:10 223:3 245:10	<b>stringent</b> [2] 50:1 61:21
<b>six</b> [10] 11:11 105:4,8 106:6 151:8 209:19 222:9 224:9 240:24 241:2	<b>someone</b> [2] 195:24 210:10	<b>spoken</b> [3] 21:8 25:23 50:18	<b>statement</b> [4] 197:14,22 198:22 202:10	<b>strive</b> [1] 244:23
<b>six-week</b> [1] 136:22	<b>sometimes</b> [5] 85:10 154:23 163:15,16,17	<b>sport</b> [3] 6:9 7:1,5	<b>statements</b> [1] 197:14	<b>strobe</b> [1] 96:2
<b>size</b> [35] 46:23 48:6 57:12 58:22 64:14 70:25 90:12 91:6,25 92:15 105:4 111:4,21 114:16 121:18 129:13 134:10,20 135:22 143:17 151:10 163:17 186:22,22 195:14,22 211:4 217:19 223:14 224:7 250:19 251:8 252:14,14 254:11	<b>somewhat</b> [1] 201:24	<b>spot</b> [1] 61:13	<b>states</b> [3] 51:16 172:17 179:4	<b>strobing</b> [1] 96:6
<b>sized</b> [1] 222:2	<b>somewhere</b> [1] 156:5	<b>spray</b> [6] 40:6 73:21,25 74:9 94:20 103:3	<b>starting</b> [2] 93:19 168:25	<b>strong</b> [3] 42:11 119:21 198:18
<b>sizes</b> [24] 48:2,14,18,20 64:12,13 65:1 90:5 91:2 91:10,15,18 97:15 105:5 138:19 141:20,24 142:1 143:2 222:3,4 223:10,13 230:14	<b>Sooley</b> [1] 256:11	<b>sprayed</b> [2] 106:22 124:1	<b>starts</b> [5] 27:3 97:7 106:9 147:12 159:17	<b>strongest</b> [1] 49:14
<b>sizing</b> [9] 47:1 48:1,4 64:8,10,20 132:22 162:12 163:20	<b>sorry</b> [28] 2:5,5 3:7 13:16 14:21 28:14 39:22 52:9 53:10 62:24 97:3 110:25 123:9,11 131:24 134:22 139:10 153:18 155:24 161:9 170:25 183:4,5 191:1 204:7 234:13,15 234:15	<b>spread</b> [1] 233:9	<b>state</b> [5] 1:13 11:10 243:21 246:8,17	<b>strongly</b> [11] 118:22 120:15,17,24,25 121:8 121:21,23,25 197:25 198:21
<b>sizing</b> [9] 47:1 48:1,4 64:8,10,20 132:22 162:12 163:20	<b>sort</b> [11] 7:17 14:1 33:22 45:16 146:24 164:25 177:25 187:3 244:9 246:17 250:5	<b>spreadsheets</b> [1] 233:7	<b>statement</b> [4] 197:14,22 198:22 202:10	<b>stuck</b> [1] 45:12
<b>ski</b> [1] 6:10	<b>sound</b> [2] 248:7 256:7	<b>spring</b> [1] 116:1	<b>statements</b> [1] 197:14	<b>students</b> [5] 128:19 129:20 131:22 191:21 239:6
<b>skin</b> [2] 108:24 122:14	<b>sounds</b> [1] 248:7	<b>St</b> [6] 9:22 12:10 113:2 249:1 256:5,9	<b>states</b> [3] 51:16 172:17 179:4	<b>studied</b> [1] 247:14
<b>sleeve</b> [3] 78:19 89:2 173:14	<b>sources</b> [1] 162:25	<b>stability</b> [1] 97:10	<b>staying</b> [1] 113:20	<b>study</b> [2] 160:2 212:25
<b>sleeves</b> [1] 70:19	<b>sourcing</b> [1] 111:19	<b>stacked</b> [2] 38:15,16	<b>steady</b> [1] 11:10	<b>subcontractors</b> [1] 204:21
<b>slide</b> [15] 8:10 19:14 29:2 34:1 53:20 54:24 73:14 75:10,21 87:10 102:3 104:2,20,24 118:18	<b>sound</b> [2] 248:7 256:7	<b>staff</b> [21] 4:19 10:14 11:12 36:4 68:6,7 88:18 88:23,24 89:15,21 132:11 137:16 139:20 158:7 197:7 207:20,21 219:3,9 239:7	<b>stay</b> [5] 49:10 74:6 112:6 112:8 224:11	<b>subject</b> [9] 18:12 25:10 25:14 36:2 39:20 41:7 41:20 207:7 220:19
<b>slides</b> [2] 54:3 110:8	<b>speaking</b> [2] 3:5 42:6	<b>stage</b> [1] 96:15	<b>staying</b> [1] 113:20	<b>subjects</b> [7] 41:14 42:16 48:7,8,10 129:13 214:14
<b>slight</b> [2] 164:4,5	<b>spears</b> [3] 32:17 35:13 158:6	<b>stages</b> [1] 193:15	<b>staying</b> [1] 113:20	<b>submerged</b> [7] 44:18 45:8 75:1 93:22 95:8 116:8 181:17
<b>slightly</b> [1] 141:17	<b>spec</b> [1] 60:8	<b>stakeholders</b> [2] 34:10 38:13	<b>steady</b> [1] 11:10	<b>submission</b> [1] 175:8
<b>slow</b> [2] 14:23 41:23	<b>special</b> [6] 5:9 6:15 7:16 26:2,15 52:8	<b>stand</b> [2] 77:1 146:13	<b>step</b> [5] 136:10 150:22 200:16 220:14 230:23	<b>submit</b> [4] 60:2 175:8 187:6 204:17
<b>small</b> [19] 48:15 64:14 72:18 91:4,10,17,21 92:1 92:3,4,13 97:16 105:6 121:3 163:13 164:4 214:12 250:7,17	<b>specific</b> [19] 21:2 22:5 43:21 52:20 58:23 59:15 70:20 75:24 98:6 102:2 105:17 108:7 143:18 172:17 173:23 209:10 224:15 235:2 253:3	<b>standard</b> [97] 15:16 24:13,17 25:16,20 26:9 26:17 27:15,21,22,24 28:23,25 35:17,23,24,25 38:13 39:2,5,6,9 40:3 42:7,8,23 44:11 45:13 46:11,13,16 47:8,13 48:11,11,17 49:11,12,15 50:12 51:6 52:7,12,19 52:25 55:13,13 59:18,19 61:21 62:12 63:4,9,12 69:24 70:2 107:25 108:3 108:4,11 129:8 134:25 138:21 141:13 143:16 144:10,25 149:4 151:15 159:20 160:10 166:12,13 166:19 167:2,13 170:12 172:17,22 173:7 178:12 194:23 195:3 212:1 213:7 222:23 226:5,6,14 227:3 227:23,24 228:11,13 231:6 240:10 252:10	<b>staying</b> [1] 113:20	<b>submitted</b> [1] 60:4
<b>smaller</b> [16] 59:3 63:17 63:19 91:2,15 138:22,22 140:21 141:3,4,5 186:22 186:22 187:7,8 210:12	<b>specifically</b> [4] 43:9 156:4 169:8 180:22	<b>standards</b> [2] 49:17,18	<b>staying</b> [1] 113:20	<b>subsequently</b> [1] 190:21
<b>smallest</b> [1] 64:12	<b>specification</b> [4] 55:24 102:24 103:1 210:21	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>subtle</b> [1] 173:19
<b>smalls</b> [2] 90:21 91:8	<b>specifications</b> [2] 175:21 210:3	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>successful</b> [6] 54:19,23 71:5 80:1 81:19 84:24
<b>smooth</b> [1] 122:15	<b>specifities</b> [3] 48:13 55:18 202:4	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>such</b> [6] 93:10 125:4 190:19 205:1 207:5 216:22
<b>snag</b> [1] 40:23	<b>specs</b> [1] 173:17	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>suck</b> [1] 192:23
<b>snowboard</b> [1] 6:10	<b>spectrum</b> [2] 38:20 139:23	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>sudden</b> [1] 227:22
<b>snug</b> [3] 121:3 122:9,10	<b>speculation</b> [1] 213:16	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>sufficient</b> [1] 250:18
<b>so-called</b> [2] 141:12 158:15	<b>Spencer</b> [29] 167:24 168:4 235:14,15,19,20 236:6,11 237:1,12,20 238:9,13,24 239:13,20 239:25 240:9,16,21 241:3	<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>suggest</b> [4] 56:25 57:24 83:20 122:4
<b>sock</b> [3] 111:6,7,9		<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>suggested</b> [1] 237:4
		<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>suggesting</b> [2] 154:8 246:23
		<b>standards</b> [58] 4:22 15:18 21:19,20,23,24 24:12,21,25 25:21 28:14 33:8,21 34:4,6,18,19,20 36:7,12,16,18,21,23 38:25 46:8 48:2,4,6 49:2 50:14 60:5 61:14 73:21 144:19 150:17 151:5 156:18 160:7,19 165:18 166:8,10 167:3 170:22 172:16,25 173:1 177:10	<b>staying</b> [1] 113:20	<b>suit</b> [481] 4:17,20 5:3,14 9:19,21 11:5,14,15,18 12:9,14,21 13:19 17:8 20:14,15 21:1,2,18 22:20 26:4,5,18,22,24 27:3,5,6 27:8,9,11,17,20 28:12 29:4,6 33:9,10 34:21,23 35:6,18,23 37:7 39:7,18 39:22 41:21 42:9,18,23 44:6,12,15,17 45:24 46:8 46:11,13,16,17,23,24 47:4,8,17,19,20,21,22

47:24 48:12,19 49:2,7 50:8,10,22,22,25 51:2,3 51:5 52:6,13 53:12,22 54:12 55:11 57:15,24 58:3,19,19,22,23,25 59:6 59:14,16,18,20,23 60:8 60:12,13,17,18 61:3,11 61:12,12,18,20,23 62:3 62:25 63:1,3,5,18 64:5 64:12 65:7 66:14,16,17 66:22,22 67:1,5 69:19 70:5,5,11 71:2 72:25 73:15,20 74:1,4,10,15 74:20 75:8,9,14 76:9,24 78:11,14,15 81:25 82:8 83:3,10 84:5 86:13,14 86:19 89:10,11,16 90:13 90:15,24 91:2,6,18,19 91:22 92:19 93:10,12,19 93:21,23 94:1,5,7,8,11 94:12 96:19,21 97:4 98:12,18,19,22 100:7 101:1,1,4,16 102:8,17 102:19,21 103:5,5,20,25 104:12,14,16,18 105:2,4 105:6,16,17,20,25 106:3 106:10,13,24 107:4,6,7 107:12,14,25 108:1,8,18 108:22 109:13 110:4 111:10,24 112:14 113:16 113:20,21,25 114:1,2,12 114:22 115:4,4,5,12,14 115:19 116:6 117:5,20 117:25 119:7,11,15 120:3 120:16,18,20,23 122:12 122:13,13,14 123:15,16 123:20,22 124:18,19 125:18,20,23 126:22,24 127:4,9,13,16,16,19,21 128:24 129:5 132:13 133:18 134:10,23 135:22 136:9,11,12,14,17 137:16 138:12,15,19,21 140:23 141:13,20 142:13,14 143:2,8,11,21 144:7,9 144:18,20,22 145:2,5,6 145:6 146:3,20 147:7,8 147:9,10,16,19,22 148:14 148:17 149:5,8,25 150:2 150:3,4,14,15,16,19 151:1,3,3,9,9,13,14,22 151:24 152:1,2,5,6 153:2 153:17 155:5 157:3,9,20 157:22 158:12 159:10 160:6 162:8,19 164:7 166:1,4 172:2,21 173:18 173:20,20,22 174:4 175:19 177:6,9,11 178:1 178:11 179:12,25 180:19 181:9 182:12 186:22 187:9,12 188:13 190:25 191:1 193:3 194:7,18,22 195:5,6,16,21 196:5,11 196:17 197:16 198:19 199:15 200:19 201:17 202:13 208:2,11,15 209:11,13,16 210:12 212:2 214:23 217:14 219:25 220:3,3,7,8,10 220:11 221:5,11,20 222:23,23,24 223:16 224:19 226:4,13,20 227:21 228:6,17,19	229:10,25 230:5,6,12,16 231:11 233:10 234:8 236:21,25 237:19,23 238:3,5 239:16 240:5,11 240:11 242:10,23 245:22 250:7,9,10,14,19,20,22 251:7,11,12,15 252:7,9 252:9,10,13 253:15,21 254:9,16 <b>suit's</b> [1] 196:8 <b>Suite</b> [1] 256:5 <b>suits</b> [233] 4:25 6:16 10:21 12:16,18,22 13:11 13:22 14:4,6 19:5,10,12 20:23 21:5 24:15 30:8,9 32:10 35:6 39:12 43:16 46:21 47:6 50:8 51:9 54:8 55:1 56:25 57:14 57:17,22,25 58:2,9,9,11 58:12,15,16 59:2 61:22 62:13,14,19 65:12 69:8 69:13,15,23,25 70:2 71:6 71:12,16,22 72:3,19 73:5 73:9 78:4 81:11,21 83:5 83:7,11,20 84:3,6,15 86:3,6,7,10 87:7 88:25 89:1,5,13 90:8 91:4 98:13 99:9 103:14 104:17 105:15 106:19,20,21,22 108:24 111:2,5,7,18,20 111:20 114:4,7 122:5 123:2,23 124:3 133:22 134:6,7 135:12 138:20 139:2 141:18 142:6,9,22 143:1,6 145:9,11,16,17 146:19 150:16 151:4,15 155:19 159:13 160:19 162:8 163:5 164:8 171:23 172:11 173:2,3 176:5,22 178:7 180:10 186:3,5,12 186:15,16 187:17,20,22 188:1,3,7,9,20 189:1,3 189:12,16,22 190:20 191:9 193:6,9,24 194:11 194:17 196:4 197:5 201:7 202:4,12,16,23,25 203:3 203:5,7,13,18,20 208:20 209:6 210:3,6,8 213:9 216:24 217:18 218:9,17 218:19 219:12,14,18,22 219:24 220:9,20,24 221:2 221:3,17,20 222:3,8,12 222:14 223:3,4,5,23 226:2 227:1,2,10 228:8 228:16 229:1,7,9,15 231:4 233:19 234:4 236:19 237:5,9,18 238:18 238:19 249:16,23 250:4 252:14,16,17,18 <b>summary</b> [5] 157:6,8 211:24 212:4 247:24 <b>summer</b> [2] 239:5 252:16 <b>Suncor</b> [5] 29:13,15 56:5 80:10 205:3 <b>supervising</b> [1] 68:21 <b>supplied</b> [11] 66:20 86:6 86:7 87:2 175:24 182:20 203:12 204:25 205:11,14 235:1 <b>suppliers</b> [1] 204:21	<b>supply</b> [32] 11:23 46:21 55:7,9,11 57:18 59:15 59:17,20 65:25 66:13 67:16,17,17,23 69:6 72:18,20,24 85:13 86:3 99:3 155:11,11 173:4 179:5 186:1 202:11,13 203:10 217:18 234:25 <b>supplying</b> [2] 29:5 178:5 <b>support</b> [3] 34:7 157:4 218:20 <b>suppose</b> [2] 171:14 244:6 <b>surface</b> [8] 44:24,25 150:24 212:11 214:21 244:3,13,18 <b>surprised</b> [3] 201:5,23 238:1 <b>survey</b> [16] 116:13 117:4 117:6,13,15,17 120:19 131:2 161:2,4,16,19 162:13 197:9 235:23 237:7 <b>surveyed</b> [1] 162:2 <b>survival</b> [22] 6:16 10:21 11:14 13:11 14:3,6 17:7 17:7 19:5,10,12 30:1,8 37:14,21 86:2 136:21 150:24 153:17 247:9 254:25 255:13 <b>survive</b> [1] 251:6 <b>survivor</b> [2] 240:10 248:22 <b>suspect</b> [1] 41:24 <b>suspension</b> [8] 144:21 145:3 147:2,4,6,7 231:9 231:11 <b>swapped</b> [1] 66:25 <b>sweat</b> [1] 122:16 <b>swim</b> [10] 108:13,16 115:9 158:9,24 159:22 159:22,25 212:11,21 <b>swimming</b> [1] 214:4 <b>switch</b> [2] 96:3 102:16 <b>sworn</b> [2] 1:10,11 <b>system</b> [59] 4:16 5:3 14:15,17 16:1 18:2 20:16 21:1 22:20 26:4,24 34:23 44:6,12 46:8 47:17 48:19 50:8 60:12,17 62:2 63:1 63:6 66:12 67:2,4,7 75:8 75:22,24,25 78:14,15 82:8 96:21 105:25 106:18 124:19 144:21 145:3 147:2,4,6,7 151:14 159:10 173:20 179:20,25 180:1 204:5,16,20 205:22 231:9,11 242:10 245:12 245:12 <b>systems</b> [20] 15:13,16 21:2 26:5 29:6 30:4 34:21 37:14 48:12 66:25 78:11 81:25 86:2 89:8 105:2 179:5 182:23 185:16 191:1 247:9	<b>tab</b> [4] 26:25 95:5 96:9 97:6 <b>table</b> [2] 106:21 214:7 <b>tabled</b> [1] 204:22 <b>tables</b> [1] 211:4 <b>tabs</b> [3] 74:11 94:21 103:3 <b>tag</b> [2] 113:22,23 <b>tailored</b> [1] 220:12 <b>takes</b> [7] 50:19 100:14 163:16 191:13,22 230:7 230:9 <b>taking</b> [4] 35:14 122:14 195:2 245:17 <b>talks</b> [1] 56:15 <b>tall</b> [2] 195:13 224:8 <b>Tara</b> [1] 256:5 <b>target</b> [1] 218:17 <b>taught</b> [1] 94:7 <b>TC</b> [1] 49:23 <b>team</b> [6] 32:24 82:23 133:3,7,10,11 <b>technical</b> [5] 6:11 26:10 51:21 173:16 210:3 <b>technician</b> [4] 101:20 155:11 217:20 221:23 <b>technician's</b> [1] 211:3 <b>technicians</b> [4] 101:16 107:2,6 137:20 <b>technologies</b> [2] 166:9 166:15 <b>technology</b> [4] 82:5,12 85:24 165:11 <b>teeth</b> [2] 94:24 125:7 <b>television</b> [1] 5:17 <b>telling</b> [1] 175:18 <b>temperature</b> [5] 151:18 151:19 152:9 215:24 249:10 <b>ten</b> [3] 17:25 86:12 145:7 <b>tender</b> [1] 77:20 <b>tension</b> [3] 116:1 125:1 125:3 <b>term</b> [3] 177:17 207:18 236:17 <b>termed</b> [1] 56:3 <b>terms</b> [93] 4:23 9:14 14:10 25:5,15 30:7 32:9 43:13,20 44:7,9,11 45:5 48:4 51:17 57:12 60:15 61:25 72:22 75:10 78:1 82:25 85:15 90:20 97:25 98:2,4,7 99:13 106:9 115:14 119:2 120:19 122:7,8,11,19 123:17 129:19 133:2,15 140:10 148:4,16 150:21,22 152:5 152:7 157:8 158:12 160:9 162:11 163:4 164:10 165:22 166:9,11 169:8 173:22 176:2 181:12 194:7 195:4 201:12,18 201:23 206:12,14,14 207:25 208:1 209:4,5,11 213:20,22 214:18 228:24	230:10,14 233:5 236:14 238:18 243:19 245:1,14 247:14 248:18 251:24 252:6 253:10 254:6,20 <b>Terra</b> [2] 55:5 56:16 <b>test</b> [59] 28:25 42:16 45:13 48:7,8 49:24 50:1 51:25 60:25 61:14,15 63:12 106:14,15,19 108:3 108:6,15 119:20 136:16 138:9 156:4 157:12,21 157:25 158:19,19,20 159:20,22 160:1,5,8 165:18,24,24,25 167:4 201:15 211:25 212:2,7,9 213:15,19 214:5 216:6,7 217:8,21,22 241:24 242:21 244:21 245:2 246:19 247:8,13,25 <b>tested</b> [13] 24:12 26:8 28:12 36:8 44:17 116:4 129:12 140:6 151:1,14 157:10 201:10 211:21 <b>testimony</b> [6] 3:20 89:19 94:6 118:10 199:24 225:19 <b>testing</b> [84] 11:15 21:24 24:16,19 27:19,23 32:9 32:20 34:14 39:11,15,16 39:17,19,20 40:6 41:6,7 41:8,9,12,18,19,20,21 50:6,9 60:3 63:21 64:5 69:21 71:23 94:13 106:13 107:17,23 108:6,18 109:4 109:7 115:5 119:9,18 141:9 155:14,16 156:17 156:18,20,24 157:2,11 157:23 165:20,22 166:6 175:9 176:15,16 209:20 209:20,21 211:19 215:16 216:4,16,22 217:1,7,13 217:17,25 218:3 231:7 241:20,22,25 243:2,3 247:16,22 248:10,13,13 <b>testings</b> [1] 119:22 <b>tests</b> [11] 115:6 119:19 144:24 158:14 159:8 160:19 201:13 216:9 217:23 242:1,8 <b>thank</b> [18] 1:20 9:12 154:16,21 167:18,24 202:1 225:5,7,9 231:15 235:10,11,13 243:7,9 255:3,5 <b>therefore</b> [1] 157:19 <b>thermal</b> [35] 10:20 14:8 32:9,10 41:18,18,21 61:15,18 96:17,20 106:10 107:1 108:5,5,18 115:14 150:18 157:14,17 160:9 176:16 212:23 213:5,6 216:15 217:1,13 218:2 249:16 253:19,23 254:8 254:11,20 <b>they've</b> [3] 230:22 234:8 252:12 <b>thick</b> [1] 253:7 <b>thinking</b> [1] 245:5 <b>third</b> [5] 24:16 174:17
---	--	---	---	--

-T-

**T-handle** [1] 148:21

<p>174:17 180:3 183:7 <b>thought</b> [5] 132:1 150:3 189:7 196:20 244:10 <b>threatening</b> [1] 88:7 <b>three</b> [44] 6:8 39:9 42:7 48:14,18 55:24 56:4 58:18 80:3 84:19,22,25 90:3 97:23,24 98:15,19 100:9,10,10 108:16 112:16,24 117:19 137:19 140:1 142:15 143:2 145:23 158:23 159:19 161:10 190:24 191:1 202:2 208:21 213:21 221:22 223:10 233:9 244:5,8,15 245:8 <b>three-feet</b> [1] 42:19 <b>three-foot</b> [2] 39:23,25 <b>three-quarters</b> [1] 248:4 <b>three/four</b> [1] 112:12 <b>through</b> [58] 1:21 4:14 4:16 5:5,17 20:3 23:8,9 41:1 48:24 54:3 58:10 58:20 83:22 90:2 91:8 97:21 101:4,20 109:13 109:13,15,17 110:12 131:10,11,16,18,21 132:12 138:17,25 146:4 147:9 155:2 158:14 165:17 166:2,2,7 168:11 176:1 182:21 191:20 193:22 202:15,18 215:2 220:17,21 222:13 223:1 223:14 238:15 242:5 243:2 246:19 247:25 <b>Thursday</b> [1] 112:18 <b>tight</b> [9] 121:5,11,13 193:1 210:13 236:5,7,23 254:1 <b>tighten</b> [1] 149:4 <b>tightening</b> [1] 61:20 <b>tighter</b> [1] 141:6 <b>tightness</b> [1] 113:16 <b>timeframe</b> [4] 167:10 167:13 174:14 177:5 <b>timely</b> [1] 206:2 <b>times</b> [6] 108:16 112:12 145:7 160:4 193:2 243:20 <b>timing</b> [1] 220:19 <b>today</b> [19] 3:20 4:11 5:14 11:1 21:9,11 55:20 58:17 75:14 76:9 125:24 126:24 138:25 139:5 155:20 197:2 220:2 224:23 226:11 <b>together</b> [5] 34:17 49:1 49:9,10 166:11 <b>tolerance</b> [1] 163:19 <b>tolerances</b> [1] 164:1 <b>tomorrow</b> [1] 255:11 <b>too</b> [10] 38:16 45:25 124:1 132:2 134:6,8 166:23 236:5,7 250:7 <b>took</b> [11] 34:2 83:15 128:22 135:20 136:9 150:2 158:3 175:18,18</p>	<p>225:3 240:24 <b>top</b> [14] 27:7 38:21 47:18 84:15 93:12,19,20 95:18 117:21 122:24 147:7 197:17 198:20 205:16 <b>torn</b> [1] 103:15 <b>torque</b> [1] 102:11 <b>torso</b> [1] 96:8 <b>total</b> [17] 44:10,11 83:10 141:24 142:1 198:17,20 207:3 214:19 215:6 222:8 223:16 233:7,10,10 234:25 238:21 <b>touch</b> [2] 73:5 157:7 <b>touched</b> [1] 75:12 <b>towards</b> [5] 50:14 165:18 166:6 170:11 230:23 <b>track</b> [4] 103:20 105:15 105:20 170:25 <b>tracked</b> [4] 66:7 103:17 105:2 206:1 <b>tracking</b> [7] 88:25 101:12,14,17 104:16 105:18 185:2 <b>tracks</b> [1] 103:23 <b>trade</b> [4] 8:8,14,17 193:2 <b>traditionally</b> [1] 252:12 <b>train</b> [3] 132:1 190:3 207:20 <b>trained</b> [6] 120:22 122:12 190:21 191:4 207:3,22 <b>training</b> [34] 32:20,20 84:16 85:23 86:4,10,14 87:15,15 88:1,6,6 94:6 110:11 114:22,24 115:8 115:10 123:7,12,22 128:17,18 129:19 131:21 137:15,17,22 150:16 190:9,24 191:17 207:22 250:5 <b>transcribed</b> [1] 256:6 <b>transcript</b> [1] 256:3 <b>transit</b> [1] 67:18 <b>Transmit</b> [1] 185:15 <b>transmits</b> [3] 181:10,25 184:12 <b>transmitting</b> [1] 184:25 <b>transport</b> [59] 4:25 5:14 12:16 17:7 19:13,19,22 20:23 21:4,18 22:20,24 23:14,19,20 24:15 25:5 25:11,12,18 26:5 27:16 27:20 29:5 34:22 35:23 37:20 44:15 52:10,11 54:8 55:13 59:14,18,19 69:20 70:3,7 71:11 99:16 101:17 107:11 126:6 129:3 140:23 141:2 171:5 172:10 179:11,15,18 180:11 186:17 187:4 226:6 227:10,12 228:13 230:6 <b>transportation</b> [11] 33:9 35:17 37:7 39:7 44:6 45:23 47:5 62:14 153:15 165:9 171:23</p>	<p><b>trapped</b> [7] 45:8 47:19 47:22 93:23 94:8,10,11 <b>travel</b> [9] 45:3 89:7 98:18 98:19,22 138:10 139:20 239:9,22 <b>travelled</b> [1] 239:6 <b>travellers</b> [1] 139:25 <b>travelling</b> [12] 66:21 71:18 89:4 116:14 117:17 137:4 139:15,18,19 189:17 232:13 239:2 <b>tread</b> [1] 121:19 <b>trip</b> [3] 98:24 100:8 249:3 <b>triplicate</b> [1] 80:15 <b>trips</b> [1] 105:4 <b>truck</b> [1] 167:11 <b>true</b> [5] 143:6,8 164:14 223:22 256:3 <b>try</b> [7] 3:9 5:19 129:20 153:14 166:3 250:13,14 <b>trying</b> [7] 41:24 47:12 93:3 144:23 154:25 220:24 244:12 <b>TSB</b> [1] 152:10 <b>TSO</b> [1] 26:9 <b>tube</b> [6] 27:1 94:22,23 95:1 97:6 102:13 <b>tubulate</b> [1] 243:21 <b>tucked</b> [1] 73:25 <b>Tuesday</b> [1] 112:17 <b>turn</b> [4] 41:10 58:19 96:24 178:25 <b>turned</b> [3] 201:20 247:10 250:6 <b>two</b> [46] 13:19 33:5,7 34:20 36:9 39:13 45:24 46:8 49:1 61:8 65:15,25 75:12 76:15 79:22 96:5 100:7 108:13 109:21 120:23 146:22,23 154:14 160:22 164:8,17,21 166:3 168:16 174:18,18 178:10 180:21 181:25 192:10 202:14 206:5,7 212:9 217:19 221:16 227:19,20 227:21 232:14 234:18 <b>two-layer</b> [1] 245:11 <b>two-minute</b> [1] 144:24 <b>type</b> [10] 22:14 36:12 171:7,9,23 180:11 187:12 241:6,22,25 <b>types</b> [7] 3:25 98:4 102:2 164:2,13 183:9 237:14 <b>typical</b> [2] 111:9 112:13 <b>typically</b> [14] 44:1 46:23 48:14 51:1 62:18 90:16 91:7 94:4 103:8 108:22 109:15 130:11 132:21 143:17</p>	<p>133:18 <b>ultimately</b> [1] 149:7 <b>Um-hm</b> [2] 181:21 182:11 <b>unannounced</b> [1] 25:10 <b>uncomfortable</b> [2] 196:8 236:8 <b>uncomfortably</b> [2] 121:11 254:1 <b>under</b> [11] 7:18 8:2 45:14 56:14 93:22 108:5 140:7 192:18 204:15 232:11 245:24 <b>undergarments</b> [1] 10:20 <b>Underneath</b> [1] 208:17 <b>undersigned</b> [1] 256:2 <b>understand</b> [20] 4:3 5:9 22:23 39:4 65:2 71:7 72:21 75:17 78:2 87:25 202:21 211:21 215:19 216:23 229:12 230:3 232:8 237:21 243:1 252:24 <b>understandings</b> [1] 202:24 <b>understood</b> [9] 71:11 119:5 149:23 156:24 171:25 189:19 217:11,12 225:25 <b>undertaken</b> [2] 153:6 155:7 <b>undertakes</b> [1] 33:21 <b>undertook</b> [1] 155:7 <b>underwater</b> [2] 88:14 179:6 <b>Underwriters</b> [2] 36:17 36:22 <b>undetected</b> [1] 106:25 <b>Unfortunately</b> [1] 152:2 <b>unique</b> [1] 143:18 <b>unit</b> [23] 23:1 61:13,14 66:3,14,17 75:13,17,19 76:3,8 78:12 96:14 112:20,22 170:2,7,9 181:9,10,18 182:5,9 <b>United</b> [1] 51:16 <b>units</b> [16] 30:8 66:1,19 67:14 71:13 75:12 87:16 90:17 179:11 184:25 185:19 189:13 232:13,25 233:8 235:7 <b>universal</b> [7] 13:21 46:24 48:15 62:18 150:14 151:4 228:17 <b>University</b> [1] 255:13 <b>unlike</b> [1] 112:13 <b>Unlimited</b> [2] 256:12,14 <b>unused</b> [1] 156:10 <b>unzip</b> [1] 119:21 <b>up</b> [120] 2:12 5:10 8:9 12:18 20:15 26:24 27:3 28:3 29:11,25 33:6 35:1 38:18,19 41:19 42:7 47:9</p>	<p>48:18,20 50:16 53:23 64:23 70:19 71:14,20 72:11 75:23 77:1,4 79:11 79:12,23 83:1 85:17,20 87:7 89:13,18,23 90:1 90:16 91:19 96:3 101:10 102:3,22 107:24 110:5 111:4 112:21,22 117:9 118:8,13,18 123:9 125:16 125:17 127:19 128:10 129:1 132:23 137:15 143:6 146:25 147:8,12 147:15 148:22,23 153:25 154:5,23,25 155:20 158:22 164:10,12 169:4 177:21,24 182:16 183:4 183:14,20,25 189:14 192:23 195:14,18,21,22 196:10 198:9,15 199:1,5 199:13,15,23,25 200:5 200:12,14,17,23 201:2 207:24 221:21 223:5 231:15 233:1 234:13 236:23,24 238:14 245:21 245:25 249:11 252:16 <b>update</b> [2] 22:21 23:17 <b>updated</b> [3] 28:25 93:3 172:22 <b>updates</b> [1] 23:18 <b>upfront</b> [2] 146:4 177:10 <b>upgrade</b> [1] 25:20 <b>upper</b> [1] 8:9 <b>ups</b> [1] 87:4 <b>upside</b> [1] 201:20 <b>upwards</b> [1] 102:17 <b>used</b> [39] 12:16,23 22:1,4 22:7,9 46:22 51:23,25 53:12 55:2 67:12 86:10 98:24 103:23,25 105:9 105:17 111:9 148:11 156:9,12 157:14 169:1 173:5,7 181:11 182:3 211:25 227:1,11 228:12 228:14 248:1 252:12 253:11,12,14,22 <b>useless</b> [2] 244:4,8 <b>user</b> [7] 71:21 95:21 112:13,13 169:5 181:17 249:25 <b>users</b> [8] 32:23 34:14 38:19,22 114:4 131:1,20 210:7 <b>uses</b> [1] 179:20 <b>using</b> [8] 80:16 113:25 150:19 173:17 178:12 216:24 221:16 233:14 <b>usually</b> [3] 243:21 246:9 246:9 <b>utilizing</b> [1] 159:11</p>
-U-				
<p><b>Uh-hm</b> [7] 194:25 197:9 208:19 209:8,16,23 213:9 <b>UL</b> [1] 36:22 <b>ultimate</b> [2] 130:25</p>	<p><b>trapped</b> [7] 45:8 47:19 47:22 93:23 94:8,10,11 <b>travel</b> [9] 45:3 89:7 98:18 98:19,22 138:10 139:20 239:9,22 <b>travelled</b> [1] 239:6 <b>travellers</b> [1] 139:25 <b>travelling</b> [12] 66:21 71:18 89:4 116:14 117:17 137:4 139:15,18,19 189:17 232:13 239:2 <b>tread</b> [1] 121:19 <b>trip</b> [3] 98:24 100:8 249:3 <b>triplicate</b> [1] 80:15 <b>trips</b> [1] 105:4 <b>truck</b> [1] 167:11 <b>true</b> [5] 143:6,8 164:14 223:22 256:3 <b>try</b> [7] 3:9 5:19 129:20 153:14 166:3 250:13,14 <b>trying</b> [7] 41:24 47:12 93:3 144:23 154:25 220:24 244:12 <b>TSB</b> [1] 152:10 <b>TSO</b> [1] 26:9 <b>tube</b> [6] 27:1 94:22,23 95:1 97:6 102:13 <b>tubulate</b> [1] 243:21 <b>tucked</b> [1] 73:25 <b>Tuesday</b> [1] 112:17 <b>turn</b> [4] 41:10 58:19 96:24 178:25 <b>turned</b> [3] 201:20 247:10 250:6 <b>two</b> [46] 13:19 33:5,7 34:20 36:9 39:13 45:24 46:8 49:1 61:8 65:15,25 75:12 76:15 79:22 96:5 100:7 108:13 109:21 120:23 146:22,23 154:14 160:22 164:8,17,21 166:3 168:16 174:18,18 178:10 180:21 181:25 192:10 202:14 206:5,7 212:9 217:19 221:16 227:19,20 227:21 232:14 234:18 <b>two-layer</b> [1] 245:11 <b>two-minute</b> [1] 144:24 <b>type</b> [10] 22:14 36:12 171:7,9,23 180:11 187:12 241:6,22,25 <b>types</b> [7] 3:25 98:4 102:2 164:2,13 183:9 237:14 <b>typical</b> [2] 111:9 112:13 <b>typically</b> [14] 44:1 46:23 48:14 51:1 62:18 90:16 91:7 94:4 103:8 108:22 109:15 130:11 132:21 143:17</p>	<p>133:18 <b>ultimately</b> [1] 149:7 <b>Um-hm</b> [2] 181:21 182:11 <b>unannounced</b> [1] 25:10 <b>uncomfortable</b> [2] 196:8 236:8 <b>uncomfortably</b> [2] 121:11 254:1 <b>under</b> [11] 7:18 8:2 45:14 56:14 93:22 108:5 140:7 192:18 204:15 232:11 245:24 <b>undergarments</b> [1] 10:20 <b>Underneath</b> [1] 208:17 <b>undersigned</b> [1] 256:2 <b>understand</b> [20] 4:3 5:9 22:23 39:4 65:2 71:7 72:21 75:17 78:2 87:25 202:21 211:21 215:19 216:23 229:12 230:3 232:8 237:21 243:1 252:24 <b>understandings</b> [1] 202:24 <b>understood</b> [9] 71:11 119:5 149:23 156:24 171:25 189:19 217:11,12 225:25 <b>undertaken</b> [2] 153:6 155:7 <b>undertakes</b> [1] 33:21 <b>undertook</b> [1] 155:7 <b>underwater</b> [2] 88:14 179:6 <b>Underwriters</b> [2] 36:17 36:22 <b>undetected</b> [1] 106:25 <b>Unfortunately</b> [1] 152:2 <b>unique</b> [1] 143:18 <b>unit</b> [23] 23:1 61:13,14 66:3,14,17 75:13,17,19 76:3,8 78:12 96:14 112:20,22 170:2,7,9 181:9,10,18 182:5,9 <b>United</b> [1] 51:16 <b>units</b> [16] 30:8 66:1,19 67:14 71:13 75:12 87:16 90:17 179:11 184:25 185:19 189:13 232:13,25 233:8 235:7 <b>universal</b> [7] 13:21 46:24 48:15 62:18 150:14 151:4 228:17 <b>University</b> [1] 255:13 <b>unlike</b> [1] 112:13 <b>Unlimited</b> [2] 256:12,14 <b>unused</b> [1] 156:10 <b>unzip</b> [1] 119:21 <b>up</b> [120] 2:12 5:10 8:9 12:18 20:15 26:24 27:3 28:3 29:11,25 33:6 35:1 38:18,19 41:19 42:7 47:9</p>	<p>48:18,20 50:16 53:23 64:23 70:19 71:14,20 72:11 75:23 77:1,4 79:11 79:12,23 83:1 85:17,20 87:7 89:13,18,23 90:1 90:16 91:19 96:3 101:10 102:3,22 107:24 110:5 111:4 112:21,22 117:9 118:8,13,18 123:9 125:16 125:17 127:19 128:10 129:1 132:23 137:15 143:6 146:25 147:8,12 147:15 148:22,23 153:25 154:5,23,25 155:20 158:22 164:10,12 169:4 177:21,24 182:16 183:4 183:14,20,25 189:14 192:23 195:14,18,21,22 196:10 198:9,15 199:1,5 199:13,15,23,25 200:5 200:12,14,17,23 201:2 207:24 221:21 223:5 231:15 233:1 234:13 236:23,24 238:14 245:21 245:25 249:11 252:16 <b>update</b> [2] 22:21 23:17 <b>updated</b> [3] 28:25 93:3 172:22 <b>updates</b> [1] 23:18 <b>upfront</b> [2] 146:4 177:10 <b>upgrade</b> [1] 25:20 <b>upper</b> [1] 8:9 <b>ups</b> [1] 87:4 <b>upside</b> [1] 201:20 <b>upwards</b> [1] 102:17 <b>used</b> [39] 12:16,23 22:1,4 22:7,9 46:22 51:23,25 53:12 55:2 67:12 86:10 98:24 103:23,25 105:9 105:17 111:9 148:11 156:9,12 157:14 169:1 173:5,7 181:11 182:3 211:25 227:1,11 228:12 228:14 248:1 252:12 253:11,12,14,22 <b>useless</b> [2] 244:4,8 <b>user</b> [7] 71:21 95:21 112:13,13 169:5 181:17 249:25 <b>users</b> [8] 32:23 34:14 38:19,22 114:4 131:1,20 210:7 <b>uses</b> [1] 179:20 <b>using</b> [8] 80:16 113:25 150:19 173:17 178:12 216:24 221:16 233:14 <b>usually</b> [3] 243:21 246:9 246:9 <b>utilizing</b> [1] 159:11</p>	
-V-				
<p><b>valid</b> [1] 145:10 <b>validation</b> [1] 167:4 <b>value</b> [5] 157:14,17,20 157:22 213:5 <b>values</b> [1] 157:11 <b>valve</b> [13] 47:18 93:21</p>	<p><b>trapped</b> [7] 45:8 47:19 47:22 93:23 94:8,10,11 <b>travel</b> [9] 45:3 89:7 98:18 98:19,22 138:10 139:20 239:9,22 <b>travelled</b> [1] 239:6 <b>travellers</b> [1] 139:25 <b>travelling</b> [12] 66:21 71:18 89:4 116:14 117:17 137:4 139:15,18,19 189:17 232:13 239:2 <b>tread</b> [1] 121:19 <b>trip</b> [3] 98:24 100:8 249:3 <b>triplicate</b> [1] 80:15 <b>trips</b> [1] 105:4 <b>truck</b> [1] 167:11 <b>true</b> [5] 143:6,8 164:14 223:22 256:3 <b>try</b> [7] 3:9 5:19 129:20 153:14 166:3 250:13,14 <b>trying</b> [7] 41:24 47:12 93:3 144:23 154:25 220:24 244:12 <b>TSB</b> [1] 152:10 <b>TSO</b> [1] 26:9 <b>tube</b> [6] 27:1 94:22,23 95:1 97:6 102:13 <b>tubulate</b> [1] 243:21 <b>tucked</b> [1] 73:25 <b>Tuesday</b> [1] 112:17 <b>turn</b> [4] 41:10 58:19 96:24 178:25 <b>turned</b> [3] 201:20 247:10 250:6 <b>two</b> [46] 13:19 33:5,7 34:20 36:9 39:13 45:24 46:8 49:1 61:8 65:15,25 75:12 76:15 79:22 96:5 100:7 108:13 109:21 120:23 146:22,23 154:14 160:22 164:8,17,21 166:3 168:16 174:18,18 178:10 180:21 181:25 192:10 202:14 206:5,7 212:9 217:19 221:16 227:19,20 227:21 232:14 234:18 <b>two-layer</b> [1] 245:11 <b>two-minute</b> [1] 144:24 <b>type</b> [10] 22:14 36:12 171:7,9,23 180:11 187:12 241:6,22,25 <b>types</b> [7] 3:25 98:4 102:2 164:2,13 183:9 237:14 <b>typical</b> [2] 111:9 112:13 <b>typically</b> [14] 44:1 46:23 48:14 51:1 62:18 90:16 91:7 94:4 103:8 108:22 109:15 130:11 132:21 143:17</p>	<p>133:18 <b>ultimately</b> [1] 149:7 <b>Um-hm</b> [2] 181:21 182:11 <b>unannounced</b> [1] 25:10 <b>uncomfortable</b> [2] 196:8 236:8 <b>uncomfortably</b> [2] 121:11 254:1 <b>under</b> [11] 7:18 8:2 45:14 56:14 93:22 108:5 140:7 192:18 204:15 232:11 245:24 <b>undergarments</b> [1] 10:20 <b>Underneath</b> [1] 208:17 <b>undersigned</b> [1] 256:2 <b>understand</b> [20] 4:3 5:9 22:23 39:4 65:2 71:7 72:21 75:17 78:2 87:25 202:21 211:21 215:19 216:23 229:12 230:3 232:8 237:21 243:1 252:24 <b>understandings</b> [1] 202:24 <b>understood</b> [9] 71:11 119:5 149:23 156:24 171:25 189:19 217:11,12 225:25 <b>undertaken</b> [2] 153:6 155:7 <b>undertakes</b> [1] 33:21 <b>undertook</b> [1] 155:7 <b>underwater</b> [2] 88:14 179:6 <b>Underwriters</b> [2] 36:17 36:22 <b>undetected</b> [1] 106:25 <b>Unfortunately</b> [1] 152:2 <b>unique</b> [1] 143:18 <b>unit</b> [23] 23:1 61:13,14 66:3,14,17 75:13,17,19 76:3,8 78:12 96:14 112:20,22 170:2,7,9 181:9,10,18 182:5,9 <b>United</b> [1] 51:16 <b>units</b> [16] 30:8 66:1,19 67:14 71:13 75:12 87:16 90:17 179:11 184:25 185:19 1</p>		

<p>94:13 101:23 115:19,19 115:23,24,25 116:2,3,5 116:10 <b>valves</b> [1] 20:13 <b>variations</b> [4] 22:18 70:4 164:25 173:22 <b>variety</b> [1] 31:14 <b>various</b> [11] 3:22 20:3,8 69:15 79:18 129:24,25 130:2 183:8 185:15 193:15 <b>vast</b> [1] 30:4 <b>velcros</b> [1] 74:14 <b>vent</b> [5] 47:21 93:22 115:20 116:3,7 <b>verbal</b> [3] 130:6,8,19 <b>verbally</b> [1] 137:1 <b>verification</b> [3] 122:24 134:9 198:14 <b>verify</b> [2] 133:18 136:12 <b>verifying</b> [2] 199:22 236:23 <b>version</b> [11] 21:17 27:21 27:22,24 28:23 35:25 62:4,6 80:24 172:20 173:15 <b>versions</b> [1] 21:19 <b>versus</b> [3] 85:13 159:3 159:22 <b>vessel</b> [2] 139:15,18 <b>vessels</b> [1] 185:15 <b>vest</b> [2] 179:13 180:4 <b>vests</b> [2] 71:16 189:16 <b>view</b> [2] 5:11 228:1 <b>viewed</b> [2] 115:23 198:12 <b>vigorously</b> [1] 201:21 <b>Viking</b> [5] 13:14,20 234:1,4,8 <b>virtually</b> [1] 244:3 <b>visible</b> [3] 44:2 86:13 102:22 <b>visual</b> [11] 12:19 17:12 101:5 103:17 106:12 136:8,13 201:14,15 211:1 211:2 <b>visually</b> [1] 209:25 <b>volume</b> [3] 64:1,1 220:20</p>	<p>108:3,7,8,12,17 109:12 115:24 121:13 128:20 129:6,6 150:4,12 151:21 152:5,6 156:25 157:13 157:13,18,20 158:10 181:15,17 184:2 193:2 211:22 212:13,15,23 213:11,13,16,20,23 214:8 214:8,10,14,15,19,22 215:2,16,21 217:23,24 243:2 244:11 245:21,24 246:1,11,13,13,18,20 247:17 248:11,15 <b>waterproof</b> [5] 108:1 108:20 119:24 159:9 242:9 <b>waters</b> [1] 243:20 <b>wave</b> [2] 74:16 95:20 <b>waves</b> [9] 46:19 61:17 158:8,16 159:3 212:13 247:3 248:4,5 <b>wax</b> [1] 101:25 <b>ways</b> [2] 90:4 159:13 <b>weaker</b> [1] 49:16 <b>wear</b> [13] 6:14 7:8 8:1 50:21,23,25 51:1 67:5 92:17,19 112:14,16 195:15 <b>wearer</b> [3] 192:22 208:21 231:13 <b>wearing</b> [7] 45:9 131:3 134:10 195:14 233:20 235:5,7 <b>weather</b> [1] 17:4 <b>web</b> [1] 5:17 <b>website</b> [1] 34:2 <b>Wednesday</b> [1] 112:17 <b>week</b> [13] 25:13 35:14,16 58:18 98:18,23 116:13 126:10,19 157:4 208:21 217:17 218:10 <b>weeks</b> [9] 98:20 100:10 112:16,24 137:10 178:21 221:22 240:24 241:2 <b>weight</b> [2] 113:16 192:17 <b>Welcome</b> [1] 154:21 <b>west</b> [3] 7:6 30:18,20 <b>Western</b> [2] 9:17 10:24 <b>wet</b> [1] 115:10 <b>Whereas</b> [1] 184:12 <b>whispering</b> [2] 131:24 131:25 <b>whistle</b> [2] 96:7 102:4 <b>white</b> [3] 55:5 56:18 144:15 <b>White's</b> [2] 13:14 38:5 <b>whole</b> [6] 98:11 107:24 147:14 163:12 168:11 175:19 <b>wide</b> [2] 164:15,20 <b>wider</b> [4] 46:22 164:19 164:21,21 <b>width</b> [3] 40:19 147:21 148:17 <b>wind</b> [7] 46:18 74:16</p>	<p>158:8,16 159:3 212:13 248:9 <b>window</b> [1] 45:11 <b>winds</b> [1] 248:2 <b>wing</b> [1] 183:19 <b>wish</b> [2] 167:25 168:10 <b>wished</b> [1] 203:1 <b>within</b> [23] 13:12 19:5 35:9 44:5 55:19 56:8 63:2 64:18 75:17 102:24 103:1 129:2 131:16 135:22 143:25 151:8 172:25 173:20 193:15,17 194:23 210:20 211:5 <b>without</b> [9] 16:8 63:20 81:23 82:8 167:15 195:2 213:15 229:10 253:20 <b>witness</b> [2] 76:25 104:10 <b>witnesses</b> [2] 22:24 255:12 <b>word</b> [4] 79:15,16 171:14 246:10 <b>worded</b> [1] 161:19 <b>words</b> [1] 99:19 <b>wore</b> [1] 250:21 <b>worked</b> [12] 29:25 30:3 31:17,18,19 32:7 111:19 129:18,22 148:5,7 243:24 <b>workers</b> [2] 165:10 210:5 <b>workforce</b> [4] 59:6,7 115:22 117:3 <b>works</b> [4] 5:25 30:18 151:13 180:11 <b>world</b> [8] 132:3,20 148:6 158:11,15 165:19 201:19 201:22 <b>worldwide</b> [1] 120:7 <b>worn</b> [5] 48:9 100:11,12 164:7,8 <b>worries</b> [2] 42:1,1 <b>wraps</b> [1] 75:20 <b>wrist</b> [16] 61:23 93:10 96:11,13 109:19 113:17 121:2,4,6,10 122:9,9 193:1 236:5,14,21 <b>wrists</b> [1] 236:17 <b>write</b> [2] 156:20 162:2 <b>written</b> [1] 217:9 <b>wrong</b> [1] 183:5</p>	<p>192:10 230:1 <b>yellow</b> [5] 44:1 74:11 86:13 89:9,10 <b>yesterday</b> [10] 33:17 35:16 87:14 109:2 127:1 128:11 154:1 155:2 168:9 217:11 <b>yet</b> [2] 60:10 127:9 <b>YKK</b> [2] 148:5,5 <b>young</b> [1] 250:11 <b>yourself</b> [5] 18:18 51:14 88:11 136:19 208:5 <b>yourselves</b> [1] 169:10</p>	<p style="text-align: center;"><b>-Z-</b></p> <p><b>zip</b> [16] 89:13,18,23 118:8 118:13 136:12 148:22 195:21 196:10 198:15 199:13,15,23,25 236:23 236:24 <b>zipped</b> [2] 125:10 132:23 <b>zipper</b> [59] 39:24,25 40:4 40:7,8,9 42:18 43:13 94:18 101:25 102:1,1 113:17 117:19,20 118:15 118:17 119:2,7,7,10,12 119:16,19,23,24,24 120:2 122:20,23 124:13,15,18 124:22,23,25 148:6,8,10 148:13,20 162:11 163:2 163:3 164:11 192:18 197:16 198:8,19 199:1,5 199:5,8,14 200:10,14,17 200:23 201:2 <b>zippered</b> [1] 124:18 <b>zippers</b> [8] 20:13 39:17 102:3,7 118:18 119:9 125:6 132:22 <b>zipping</b> [2] 127:19 200:5 <b>zone</b> [1] 229:3</p>	
<p style="text-align: center;"><b>-W-</b></p> <p><b>waders</b> [1] 17:6 <b>wait</b> [3] 168:2,5 218:18 <b>waiting</b> [3] 126:3,5 150:25 <b>walked</b> [1] 234:9 <b>walking</b> [2] 111:17 121:21 <b>warmth</b> [1] 150:1 <b>washed</b> [2] 101:3,4 <b>watching</b> [2] 5:17 224:2 <b>water</b> [76] 3:25 32:10 40:6 46:19 47:20 49:9 61:16 64:3 93:22 94:18 95:7,9,12 96:2,5 97:11</p>		<p style="text-align: center;"><b>-X-</b></p> <p><b>XYZ</b> [1] 113:21</p> <p style="text-align: center;"><b>-Y-</b></p> <p><b>yacht</b> [1] 3:24 <b>year</b> [12] 17:25 79:5 83:21 103:8 175:19,24 186:21 188:21 193:17 206:15 220:25 243:20 <b>years</b> [18] 3:3,13 7:22,24 17:25 22:10 29:23 31:13 32:18 54:14 90:14 109:21 115:3 139:21 140:2 169:6</p>	<p style="text-align: center;"><b>-[-</b></p> <p><b>[blank]</b> [1] 81:3</p>		