OFFSHORE HELICOPTER SAFETY INQUIRY
January 20, 2010
Tara Place, Suite 213, 31 Peet Street
St. John's, NL

January 20, 2010

PRESENT:

John F. Roil, Q.C./
Anne Fagan.....Inquiry Counsel

John Andrews/ Amy Crosbie. ..... Canada-Newfoundland and Labrador Offshore
..... Petroleum Board (C-NLOPB)

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

Denis Mahoney/D. Blair Pritchett.....Suncor (Petro-Canada)

Stephanie Hickman/Nicholas Crosbie.....Husky Oil Operations Ltd.

Nick Schultz .....Canadian Association of Petroleum Producers (CAPP)

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

Norman J. Whalen, Q.C.....Cougar Helicopters Inc.

Jamie Martin/Allison Battcock.....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

Robert Rutherford (without counsel) ..... Offshore Safety and Survival Centre,
..... Marine Institute

TABLE OF CONTENTS
January 20, 2010

Discussion .....Pgs. 1 - 4

MR. GARY VOKEY (PREVIOUSLY SWORN)
MR. BRIAN STACEY (SWORN)
MS. MICHELE FARRELL (SWORN)

Examination by John Roil, Q.C. .....Pgs. 5 – 265

Discussion .....Pgs. 265 - 267

Certificate .....Pg. 268

Page 1

January 20, 2010

COMMISSIONER:

Q. Good morning, ladies and gentlemen. Are you ready, Mr. Roil?

ROIL, Q.C.:

Q. Yes, I am, Commissioner. Before we start with the panel again, just a couple of preliminary comments because we're going down a path where we're looking at the second in a series of three operators whose operations and systems we are looking at in the context of safety, particularly, of course, helicopter safety. Just to remind those that are watching these proceedings that we are using these three companies as examples only. As we know, there are other players, other operators out in the various basins from time to time, and so these three companies have been chosen, perhaps because of their longevity, and we will hear today about the longevity of this particular operation.

Each of the operators has prepared their panel presentations independently. Although I worked with them to prepare a joint panel, they worked independently of one another in

Page 2

doing that. So you'll see some similarities, in terms of their presentations. You'll see some differences too, just in style, but also in the way in which they do business. The presentations and the way they do business are different. I would not say remarkably so, but there will be some differences.

The point that I'm trying to make and make clear is that by contrasting or comparing one to the other, it is not my objective nor, I think, the objective of this Inquiry, to say that one is better than the other or one has a better structure than the other. These are all world class companies who come with very sophisticated systems and, you know, we are simply looking at the way in which the C-NLOPB looks at them to see that the essential parts of the requirements are there and that they do have systems that have integrity and that do have safety as a hallmark. Obviously any party can pursue any question that they wish, that you would allow as being relevant and probative and useful to our Inquiry, but I will not -- I will try as much as possible not to compare and contrast them, but sometimes

Page 3

when differences are there, I obviously will take the opportunity to do that. So just by way of a preliminary.

Also by way of preliminary, we have the exhibit list. These exhibits have been put up on the Filebridge and the access system that the parties have and I would now ask that you accept them as exhibits. They are Exhibits number 138, which is the Suncor panel PowerPoint presentation, 139 through to 145. The vast majority of them again are confidential exhibits. They are the operating plans, the proprietary interest of various companies. The panel PowerPoint presentation in itself, of course, is public and there is the safety handbook, which they will have as part of their exhibit, is also public. Again, to try to streamline the presentation, rather than refer back to all these exhibits from time to time, we have put most of the essential ingredients of them on the PowerPoint so that we speed the presentation, so that we don't spend a long time flipping back and forth between pages. So just to give you a heads up in that area.

Page 4

COMMISSIONER:

Q. All right then. Well, these will be entered as mentioned by Mr. Roil. Okay then.

ROIL, Q.C.:

Q. Good morning, folks.

MR. VOKEY:

A. Good morning, Mr. Roil.

ROIL, Q.C.:

Q. Mr. Vokey, Mr. Brian Stacey and Michele Farrell, good morning. I believe that Mr. Vokey is already sworn. The mikes are not on. We'll get them to push the button so that -- the red light is not coming on. Oh, there they are.

COMMISSIONER:

Q. It's gone again.

ROIL, Q.C.:

Q. Okay, we now seem to have solid red lights. Okay, I'd ask that the -- the oath has already been taken by Mr. Vokey in his presentation at the joint panel, so I'd ask the Registrar to administer the oath to the other two panellists.

MR. GARY VOKEY, PREVIOUSLY SWORN

MR. BRIAN STACEY, SWORN

Page 5

REGISTRAR:
Q. State your name, please.
MR. STACEY:
A. Brian Stacey.
MS. MICHELE FARRELL, SWORN
REGISTRAR:
Q. Thank you. State your name, please.
MS. FARRELL:
A. Michele Farrell.
REGISTRAR:
Q. Thank you.
MR. GARY VOKEY, MR. BRIAN STACEY AND MS. MICHELE FARRELL,
EXAMINATION BY JOHN ROIL, Q.C.
ROIL, Q.C.:
Q. Thank you, Commissioner. Mr. Vokey, I understand that you will open for us.
MR. VOKEY:
A. That's correct.
ROIL, Q.C.:
Q. Thank you.
MR. VOKEY:
A. Good morning, Commissioner Wells, Mr. Roil. On behalf of Suncor Energy, I would like to introduce our panel members this morning. As you know, my name is Gary Vokey and I'm the

Page 6

asset manager for the Terra Nova Project. On my left is Mr. Brian Stacey, drilling manager for Suncor's east coast region, and on my far left is Ms. Michele Farrell, our manager for environment, health and safety for Suncor's east coast region.

We are here today because of the tragic loss of Cougar Flight 491 on March the 12th of last year. On that day, families lost loved ones and we all lost friends and colleagues. That day had a profound effect, not only for those of us that work in our industry, but those that we associate with outside our industry, and in fact, our whole province. We have an obligation to learn from the tragedy. We must continuously work to improve the safety in our industry.

I hope that we, as panel members, can help the Commission to succeed in achieving its objectives. We support the work of the Inquiry and we appreciate that the Commissioner will be examining issues of great sensitivity and complexity. Among us this morning, we have more than 70 years of collective experience in a variety of

Page 7

functions within the oil and gas industry. Our work has taken us from Newfoundland to Western Canada and from the North Sea to the Middle East. We're committed to our industry and to our people, but above all, to their safety. In fact, it is not an overstatement to say that the safety of our workforce is our number one priority. We want to do what we can to help improve offshore helicopter safety for our workforce, for their families and for their loved ones. It's a commitment shared by my colleagues with me today.

Mr. Commissioner, you are aware of my experience from the joint operator panel testimony last week, so I won't repeat it again. I would ask Mr. Stacey and Ms. Farrell though to take a moment to review their experience. Mr. Stacey, please.

MR. STACEY:
A. Thanks, Mr. Vokey. Good morning, Commissioner Wells, Mr. Roil. As Mr. Vokey indicated, my name is Brian Stacey and I'm the manager of drilling and completions for Suncor's east coast operations. I've been in the oil industry for 25 years and in my current role

Page 8

for four years. As drilling manager, I'm responsible for drilling, completion and modification of the wells that support offshore production of oil and gas. Generally, it's the business of the drilling rigs. Suncor relies heavily on contractors for delivering this part of our business because we don't own the drilling rigs. I'm also responsible for monitoring and assisting and learning from and sharing our learnings with our partner operations, such as Hibernia, White Rose and Hebron in the future.

I moved to St. John's in 1975 and graduated from Memorial University with a Bachelor of Engineering degree, mechanical. My wife was born in Newfoundland and we live here with our three children. Although not born here, I consider Newfoundland and Labrador to be home.

My first job in the offshore oil industry was as a steward on a drill ship working off Labrador in 1980. I recall that I was hired and sent offshore without any training. That trip involved a fixed wing flight from St. John's to Labrador and then north in Labrador

Page 9

to Saglek and then offshore from Saglek via helicopter. When I finished that rotation, I was offered a job on a drilling rig as a roughneck, a promotion, but I decided to stay the engineering path as I'd already been accepted.

During my co-op engineering work program, I worked mainly onshore in Alberta, learning the production. I worked as a production field operator, as a roughneck and a motor hand on a drilling rig, and also as a reservoir engineer for a while. So I learned kind of the basics of the upstream oil and gas business, and I knew when I finished that that I wanted to work in the drilling business.

After graduation, I accepted a position with Gulf Canada again and by 1986, I was working in the Beaufort Sea as a drilling engineer, rotating from my home in Calgary at that time, and on two rigs that worked up there, the Molikpaq and the Kulluk, and up there, we had two primary helicopters. One was the Bell 212 and the other was the Sikorsky S-61, and it's interesting to note that at that point in time, from late fall

Page 10

until early spring, all of our operations, including flying, were in darkness because of the location at 70 degrees north latitude.

The Beaufort work finished and I accepted a position in Egypt, working initially as a drilling engineer onshore, doing some planning work, and then as a night drilling supervisor on a jack-up rig working offshore in the Red Sea, and again, there was no special training requirements for flying, and that was 1992, just when the Gulf War was going on.

I returned to Western Canada for a brief period after Egypt and then worked -- took a position shortly thereafter with Schlumberger and came back to St. John's for the Hibernia project, worked onshore as a drilling engineer, but made a few trips to the Platform in support of helping to educate the offshore team around how the wells were going to be drilled, and then it was in Newfoundland at that time, which would have been '97, that I did my first formal BST course that included the HUET element.

I joined Petro-Canada in 2001 and worked offshore again as a drilling supervisor on

Page 11

Henry Goodrich and then I came back onshore and worked as the drilling superintendent for the Terra Nova development and then progressed to my current role as drilling manager.

In late 2008 and early 2009, I accepted an assignment in Trinidad to support Petro-Canada's offshore operations there, and my Newfoundland and Labrador BST was considered valid in Trinidad and we didn't wear any special suits or anything down there, just an over-the-shoulder inflatable life vest and we flew in Bell 412 helicopters there.

My sense from flying throughout my career is that Newfoundland and Labrador has very high standards for training and for the delivery of helicopter services, and I'm pleased to have the opportunity to participate in the Inquiry and will support the process in identifying improvement opportunities in any way that I can. Ms. Farrell?

MS. FARRELL:

A. Good morning, Commissioner Wells, Mr. Roil. My name is Michele Farrell and as Mr. Vokey has mentioned, I'm the manager of environment, health and safety for Suncor Energy here on

Page 12

the east coast. Born and raised in St. John's, graduated from Memorial University of Newfoundland in 1986 with a Bachelor of Commerce degree. Unlike my colleagues with me this morning, I didn't immediately enter the oil and gas industry upon graduation. I actually spent the first 11 years of my career in the Newfoundland and Labrador public sector, working in a variety of roles. So I came to the oil and gas industry in 1997 when I joined Petro-Canada and I was assigned the task of building both the people, the organization and the systems to support Terra Nova long term production operations.

The first ten years of my career with Petro-Canada offered me significant opportunity for growth and development, both as a manager and as a member of our east coast and Terra Nova leadership teams, moving from the project phase of Terra Nova, through Terra Nova first oil and now into long term production operations.

In early 2008, I was offered the position of manager of environment, health and safety for the east coast region of our international

Page 13

and offshore business unit. In this role, I'm accountable for a team of professionals. Some work offshore, some work onshore, and then they cover the areas of health, safety, environment, risk management, security, emergency response and regulatory affairs. This team provides support to all of Suncor's assets here, both operated and non-operated.

While my position supports east coast operations, I actually report to a director of environment, health and safety in our international and offshore business unit, and ultimately to a vice-president of environment, health and safety with Suncor Energy in Calgary.

In my role, I monitor and formally report on the performance of Terra Nova on a monthly basis to our regional and business unit loss management teams, and on a quarterly basis to the Canada-Newfoundland Offshore Petroleum Board and our Terra Nova Management Committee, our owner committee. In addition, I'm the Suncor representative on the health and safety subcommittees for both the Hibernia and White Rose assets, where my role is focused on the

Page 14

due diligence and sharing of best practices and lessons learned across all of our assets.

I'm also responsible for providing input into various industry health and safety initiatives and I'm a member of the Canadian Association of Petroleum Producers, or CAPP, safety subcommittee. I was the Suncor EH&S representative on the passenger safety team for the Helicopter Operations Task Force and I continue to work with my colleagues to advance the HOTF recommendations that were reviewed within the joint panel last week.

The loss of our colleagues on March 12th has, without question, focused attention on safety in this offshore industry. I have and continue to fly offshore and as the manager of environment, health and safety for Suncor, I know that we have and will continue to commit considerable efforts to continuous improvement in our performance. As Mr. Vokey has said, it's important for us to learn from this very unfortunate tragedy so that we can continue to improve our performance, and I look forward to continuing to work through this Inquiry to identifying those opportunities. Thank you.

Page 15

COMMISSIONER:

Q. Thank you.

ROIL, Q.C.:

Q. Thank you. Unless you have any questions, Commissioner, with respect to -

COMMISSIONER:

Q. Just one. I suppose you all have access to what Suncor is doing in safety matters elsewhere in the world?

MR. VOKEY:

A. Yes.

MS. FARRELL:

A. Yes.

MR. STACEY:

A. Yes.

ROIL, Q.C.:

Q. Okay, Mr. Vokey, I think you're going to give us a bit of an outline and then you'd start with the first portions.

MR. VOKEY:

A. We covered a significant amount of information about our industry through the joint panel presentation last week. In our presentation today, we'd like to provide you with additional information about Suncor Energy and

Page 16

the Terra Nova asset. Specific topics that we will cover will include a background on Petro-Canada and the merger with Suncor Energy, the Terra Nova safety plan, offshore transportation, the design and inspection of helidecks on the Terra Nova assets, helicopter transportation suits, the Terra Nova FPSO safety handbook and Suncor's response to March the 12th and our return to service activities.

In the first section, I'll provide you with a brief overview of our history on the east coast, the merger with Suncor and Petro-Canada and an overview of our east coast assets.

Petro-Canada began as a Crown corporation commencing operations in January of 1976 and becoming a publicly traded company in 1991. Petro-Canada's asset base included upstream, which is exploration production development, as well as downstream, and that's our refining and marketing division, and some of the assets included production facilities in north and western Canada, the US Rockies and offshore Newfoundland and Labrador, refining and manufacturing facilities in Quebec, Ontario

Page 17

and Alberta, retail stations across Canada and international assets in the North Sea, Trinidad, Tobago, Libya, and Syria.

Suncor's asset based historically has been more focused on oil sands production. Suncor began in 1917 with a US-based parent Sun Company and opened its first office in Montreal in 1919. 1967 marked the start of Suncor's commercial oil sands production development in the Athabasca oil sands of Alberta.

In March of 2009, Suncor Energy and Petro-Canada announced their plan to merge, and on August the 1st of last year the merged company began operations under the name Suncor Energy. The merged company is the fifth largest integrated oil and gas company in North America and is the largest in Canada.

The vision for the new Suncor is to be Canada's premier integrated energy company, focused on operational excellence and high growth with the assets, people and financial strength to compete globally. Suncor's values are actually very similar to those of Petro-Canada's. We believe in safety leadership,

Page 18

that business results can only be achieved through people, that we have to lead by example, that we all have to take accountability for our results, that we must demonstrate our capability through performance and in continuous improvement in sustainability.

Before leaving this slide, I want to talk about our safety leadership and how fundamental this is to our business. At the most senior levels of our business, safety management expectations have been clearly set. Leaders at all levels of the organization are required to integrate systems, procedures and practices that build and sustain a safety culture. Our performance is reported regularly to the senior leadership of the company and to the environmental, health and safety committee of our board of directors.

Suncor is an integrated oil and gas company with oil sands and natural gas operations in western Canada. We have a retail and wholesale business unit and we have invested in renewable wind energy. The east coast region of Suncor reports to our

Page 19

international and offshore unit which holds production licenses on the east coast of Canada, in the North Sea, that's United Kingdom and the Netherlands, and also Libya and Syria and we also have exploration interests in Norway, Trinidad, Tobago and Morocco.

Petro-Canada's activity in Newfoundland and Labrador started almost 30 years ago. The first Terra Nova well was drilled in 1984. From 1984 to 1988, there were nine Terra Nova appraisal wells drilled. We also discovered gas offshore Labrador in the early 1980s. Petro-Canada had an exploration office in St. John's during our exploration and drilling programs of the 1980s and we opened our office to support the Terra Nova development project in 1996. Petro-Canada is the largest shareholder and is the operator of the Terra Nova development. Terra Nova was the second producing field to be developed in the Jeanne d'Arc Basin, following the Hibernia development. Terra Nova was developed using a floating production and storage offloading vessel, or as we say, an FPSO. The Terra Nova

Page 20

FPSO was the first facility of its kind for the east coast of Canada.

I'll now, in reference to the assets, refer to it as Suncor assets. Suncor has a unique position in Newfoundland and Labrador and the oil and gas industry, as we are the only company with a working interest in each of the developments to date. On the left-hand side of the slide that's on your screen, you will see the Hibernia gravity base structure. Suncor has a 20 percent working interest in the Hibernia development, which commenced production in 1997. At the top of the slide, you will see the Terra Nova FPSO. Suncor has a 34 percent working interest and is the operator of the Terra Nova development. Production commenced in 2002. At the bottom of the slide is the Sea Rose, which commenced in 2005. Suncor has a 27 percent. And finally, on the right, you will see the development concept for Hebron and Suncor has a 23 percent working interest.

ROIL, Q.C.:

Q. Before we go on, the White Rose project, for those that are less familiar, who is the

Page 21

operator of that project?
MR. VOKEY:
A. I'm sorry, that would be Suncor, or sorry, Husky for the White Rose. Sorry.
ROIL, Q.C.:
Q. Do we know yet who the operating partner will be for the Hebron project?
MR. VOKEY:
A. That would be ExxonMobil.
ROIL, Q.C.:
Q. ExxonMobil will be the lead on that?
MR. VOKEY:
A. Correct. We covered this slide in the joint panel presentation, this next slide, so I'll briefly provide the overview. As indicated, our partners in the Terra Nova development include ExxonMobil, Statoil, Husky Energy, Murphy Oil, Mosbacher and Chevron. You'll see the FPSO on the left side of the slide. Drilling is separate from the FPSO facility. The MODU or mobile offshore drilling unit is located on the right side of the slide, and this is unlike Hibernia where the wells are drilled from the GBS. Produced crude is offloaded to purpose-built tankers, which you

Page 22

can see connected to the FPSO and currently we have a tanker offload approximately once a week. So the tankers don't stay there. They come and go as required to offload. The field development diagram also shows standby vessels that will be located in the field at all time. All operating assets are required to have a standby vessel on location. And this picture or diagram also depicted the helicopters that are used. You can see one there, just over the FPSO. As indicated in the joint panel last week, helicopter transportation is the primary means of transportation to and from the offshore.
ROIL, Q.C.:
Q. Okay, before you go off that slide, if you could just go back for a moment, please. The slide is not necessarily drawn to scale, I take it. The FPSO and the mobile drilling unit are shown there in close proximity. What's the relative distance between these? I gather that the mobile drilling rig might drill various places, but are they two miles apart or 20 miles apart?
MR. VOKEY:

Page 23

A. Between one and a half and two kilometres, so upwards of, you know, a mile, mile and a half sort of thing.
ROIL, Q.C.:
Q. Okay. So relatively close?
MR. VOKEY:
A. Relatively close.
ROIL, Q.C.:
Q. They're not a long distance, okay.
COMMISSIONER:
Q. I suppose the tanker would never come all that close to the FPSO, would it?
MR. VOKEY:
A. The tanker is actually -- it's about 80 metres when it's hooked up.
COMMISSIONER:
Q. I see.
MR. VOKEY:
A. So 250-260 feet.
COMMISSIONER:
Q. I see.
MR. VOKEY:
A. But both the tanker and the FPSO, without getting into too much detail, they both have dynamically position systems. So they

Page 24

reference satellites. So they operate in conjunction with each other. So if the FPSO moves, the tanker automatically moves. So it's all done by computer systems.
ROIL, Q.C.:
Q. Once they connect, that distance doesn't vary very much?
MR. VOKEY:
A. That distance don't vary.
ROIL, Q.C.:
Q. Okay.
MR. VOKEY:
A. Again, we reviewed a slide similar to this in some detail in the joint panel, so for the purpose, I'll just highlight a few of the key features. The helideck is forward of the facility and can accommodate two helicopters, and the helideck is approximately eight storeys from the bottom of the vessel.
The facility has a number of safety features. It's fully disconnectable. It's ice classed. It has thruster capacity, which means we can orientate the vessel in whichever heading we would like. The hull itself is doubled and that is to prevent any spillage of

Page 25

crude in the event of a breach. It has forward and aft blast walls and the accommodation is in the forward part of the vessel, so it is actually protected from the production facility. And down the sides, both the left and the right side of the vessel, there are escape tunnels. So in the event of an incident in the production plant, workers can get into the escape tunnels and get forward of the area that we refer to as the blast wall or a safe refuge area, and that is a protection for the workers.

I'll just talk a few minutes about the Henry Goodrich, the MODU that we talked about a couple slides ago. The Henry Goodrich -

ROIL, Q.C.:

Q. Excuse me. Has that been the only MODU that has been drilling in recent years with Terra Nova?

MR. VOKEY:

A. That would certainly be the primary. There's currently two MODUs on the east coast now. There's the Glomar Grand Banks and the Henry Goodrich and both are owned by TransOcean.

ROIL, Q.C.:

Page 26

Q. Okay. As we speak today, is either one of them working for your organization?

MR. VOKEY:

A. No. I'll get into that in a second. We did have this one until November of 2009, but it's currently working for Husky.

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. The Henry Goodrich commenced work for Terra Nova in February of 2000 and continued on a full-time basis until 2007. The Goodrich returned to do additional work in the Terra Nova field during 2009, under a special rig sharing agreement between Suncor Energy, Statoil and Husky Energy. As I indicated a minute ago, the Henry Goodrich finished work on the Terra Nova field in 2009 and is now working for Husky.

In terms of features of this facility, you'll see from the picture that the drilling derrick, and that's the high piece in the centre, is fully enclosed which makes it well suited for the Grand Banks environmental operating conditions and it's primary for wind

Page 27

and rain and snow protection for people working on the drill floor. It can accommodate 146 people and typically we have between 110 and 130 people on board, depending on work activity, and the facility has a 12-point mooring chain system. Four mooring chains come off each of the corners and it actually helps make the MODU extremely stable in harsh weather environments. The rig can operate in water depths up to 1500 metres and can drill a well just over 9,000 metres or nine kilometres in depth. The helideck, which you can sort of see in the front part of the photo, is slightly smaller than the one on Terra Nova. However, it is still 27 by 23 metres in dimensions.

ROIL, Q.C.:

Q. That's the green area there that's on the -- relatively on the left side of the drilling derrick?

MR. VOKEY:

A. That's correct, sir.

ROIL, Q.C.:

Q. The other vessels that we see in this photo -- I take it this is an actual photograph. It

Page 28

seems that there's a supply boat that is close by, just off to the left of the helideck. What are the other vessels that are in the background? Do you know?

MR. VOKEY:

A. That's actually a Husky slide, but as you indicate, there is a supply vessel adjacent the Henry Goodrich. In the back, on the right side, that small dot you see there, that would be another supply vessel, and just to the right of the derrick, that would be a tanker and that tanker would either be just coming in for a load of oil from -- that tanker would either be just coming in to hook up to the Sea Rose to take oil or it would be just finishing taking oil from the Sea Rose and just backing up to make a turn.

ROIL, Q.C.:

Q. So that's actually Husky's FPSO there?

MR. VOKEY:

A. On the background on the left, that would be Husky's FPSO. That's correct, sir.

COMMISSIONER:

Q. Quick question in case I forget to ask it later. Would the primary mode of

Page 29

transportation between the FPSO and the MODU be helicopter or by boat?

MR. VOKEY:

A. Typically, we don't transfer between the MODUs and the FPSOs because the skill sets are discreet and actually very different. If there is a skill set that we need, say, on the FPSO, like an individual or two individuals from a MODU, there's two ways of doing it. We can either do it by a Frog transfer and use one of the supply boats or standby vessels to transport them.

ROIL, Q.C.:

Q. Okay, now that's the first time we've heard the expression Frog, I think.

MR. VOKEY:

A. That's a personnel transportation apparatus where we take people from the facility and put them on a supply vessel. It takes three people at a time. It's got shock absorbers.

ROIL, Q.C.:

Q. It's some sort of a cage or basket?

MR. VOKEY:

A. It's a personnel cage. It's got a harness system to strap people in, and we can either

Page 30

take them from the MODU and put them on a supply boat, take them to an FPSO, or if there's a helicopter coming to the MODU that would be going to the FPSO later, you would use the helicopter to transport. But there's two means. Infield transfers are not that common and really there's no primary. It depends on the operations.

COMMISSIONER:

Q. So your people who work on the MODU then are housed on the MODU also?

MR. VOKEY:

A. That's correct.

COMMISSIONER:

Q. Yeah, okay. I wasn't aware of that. I assumed everybody would be living on the FPSO.

MR. VOKEY:

A. No, the MODU has full accommodations and recreational equipment, just like an FPSO would have, and they're totally independent of what the FPSOs would do.

COMMISSIONER:

Q. I see, okay.

ROIL, Q.C.:

Q. What now commonly your industry called a MODU,

Page 31

is that the same sort of beast that years ago we would have called a semi-submersible?

MR. VOKEY:

A. Yeah, there's -- MODU covers floater. So it's a mobile offshore drilling unit. Actually, a jack-up can be included too. So if it's not gravity based and it's movable, it's referred to as a MODU.

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. But that would include a jack-up, a semi-submersible, which is the most common here, or a drill ship like ConocoPhillips has off the south part of the coast right now.

ROIL, Q.C.:

Q. Right. Yeah, that's the Stena Carron I think we heard the name.

MR. VOKEY:

A. Yes.

ROIL, Q.C.:

Q. Yes.

MR. VOKEY:

A. So that includes an overview of Suncor and Petro-Canada merger and Suncor's operation

Page 32

today. I'll now hand it over -

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. Sorry?

ROIL, Q.C.:

Q. I have a couple of questions before we move on.

MR. VOKEY:

A. Okay.

ROIL, Q.C.:

Q. Not too quickly. The first question is, in terms of the transition from Petro-Canada to Suncor, and I take it that it's a merger, that there's not one company that's predominant, did all of your systems and everything have to change or was it an easy transition or did most of the documents, like your safety plan and whatnot, did they stay in place?

MR. VOKEY:

A. Currently, all our documents are as they were when they were Petro-Canada and I think during Ms. Farrell's presentation, she will get into more detail on it, but our safety plan, all our authorizations, you know, all our basic

Page 33

documents that cover operation are still as if they're Petro-Canada's.

ROIL, Q.C.:

Q. Okay. The second question is, and again I had asked a similar question to the HMDC representatives, and again with the caution that please don't tell us anything that is not publicly known, what sort of lifespan do you see for the current FPSO and the exploration and drilling activity that's going on as we see it today?

MR. VOKEY:

A. For Terra Nova, in terms of the design life, it was designed for 25 years. So we're looking at into, you know, 2025-2027, in that era. So we're about a third of our way through the life cycle on that.

ROIL, Q.C.:

Q. And would there be support drilling rigs through all or most of that period or would, at some point in time, that process stop and just the FPSO be there?

MR. VOKEY:

A. Typically on these projects, there's two things that would drive it to require a

Page 34

drilling rig. During the initial phase, I mean, it is drilling intense, because you need to get the wells in order to get the production. Then you sort of go into a lull and that's what we saw on Terra Nova after 2007. We never had a need. Over the life of the project, then you typically have workovers. You recomplete wells. So on occasion, you do need to have the ability to bring a rig in to work a well over. The other time you would need a rig is if you did any expansion type of development, if you were bringing in marginal fields that are in close proximity. As the capacity on the FPSO increases because of declining production and you have spare capacity, then you take a look at, you know, what's in the immediate area that you could tie in from a satellite perspective and in which case, you would bring a semi in again or a MODU to assist with that work. So it is on and off through the life of the project.

ROIL, Q.C.:

Q. Okay, thank you.

MR. VOKEY:

Page 35

A. Okay.

ROIL, Q.C.:

Q. Now I think we move to Ms. Farrell for the next section.

MR. VOKEY:

A. That's correct.

MS. FARRELL:

A. Yes. When Mr. Pike was here in the fall with C-NLOPB, he outlined the Board's requirements on operators, in terms of the development of a safety plan, and so the next section of our presentation, in fact the majority of our presentation, is outlining our safety plan and how we meet those requirements. So that's what I'm going to start in the next section.

ROIL, Q.C.:

Q. Again, two things here. One, Ms. Farrell, your voice is softer than some of the gentlemen, so I'd ask you to speak up a little bit so I can hear you clearly, and the other thing is, again, this is one of these compare and contrast. When we had the people from HMDC there, they had an operational plan that included a safety plan. I take it that your structure is a little bit different?

Page 36

MS. FARRELL:

A. We have two plans. We have a safety plan and an operations plan, and so we cover it all, just slightly differently.

ROIL, Q.C.:

Q. Yeah, okay. I just want to make those kinds of differences clear from the beginning, because somebody listening to one one day and one the next day might not notice that there is that difference.

MS. FARRELL:

A. Okay. So our safety plan describes how safety management for Terra Nova fits within our company's over-arching safety management system. It also describes how safety and the installation integrity are managed. So our plan fulfils the requirements that are outlined under the Newfoundland offshore area petroleum protection and conservation regulations. Those are the ones that Mr. Pike described when he was here in October. And the safety plan for Terra Nova applies to the FPSO and as well to shuttle tankers and helicopter operations, to the extent that they interact with the FPSO.

Page 37

There are though, and I should mention, separate documents that outline, or in greater detail, safety and integrity for other operations. So for example, we will have a drilling completions and interventions document. You'll see that we have a separate helicopter operations manual that augments our safety plan, provides more detail on helicopter operations. Similarly, with shuttle tanker operations, simultaneous operations, marine operations. So we have separate manuals residing under the safety plan that augment in those areas.

ROIL, Q.C.:

Q. So these are incorporated by reference, are they, into the overall safety plan?

MS. FARRELL:

A. And I'll describe a little bit about how we do that within our management system as we move through. I do want to draw your attention to the diagram on the right-hand side of the slide. There's three phases that are outlined here, the development phase, the project phase, and the operations phase, and you'll see that there's some overlap, particularly

Page 38

between the project phase and the operations phase and you see that you don't actually get to the safety plan until you get right down to the bottom, and what this is trying to describe is the fact that our work in the development of a safety plan starts long before you actually have a facility on location, and so if you think about the development phase, there's significant work done at that phase to assess and establish safety through your concept selection and your front-end engineering design.

So some examples of safety related features that would have been incorporated during that phase, concept selection and the design phase, would be the things like Mr. Vokey described. The fact that it's a double hull facility, that it's ice strengthened, that we have safe refuge areas, escape tunnels, firefighting systems. So very early in your development already, your safety management systems are starting to be formed. As you move into the project phase there are a variety of, as you can see, of risk assessments that are conducted, and they

Page 39

continue to be updated ultimately even into the operations phase. So during our project phase, we developed things like our ice management plans, our weather monitoring facilities, we established the safety zones around our installations, we developed our environmental monitoring protection plans, our safety systems on board the FPSO, and the training plans associated with that. So ultimately the first, I guess, issuance of an operations safety plan for Terra Nova happened in 2001. It's been updated periodically since that time, not quite annually, but not far from it. The next scheduled update would be in 2010.

ROIL, Q.C.:

Q. 2010 is the next update?

MS. FARRELL:

A. This year, yes. So I'll start drilling into the safety plan in a little bit more detail. The safety plan demonstrates how we ensure the safety and health of our people, the protection of the environment, and the maintenance and integrity of the offshore installation, and as I mentioned, it applies

Page 40

to the operations phase of the development and it includes helicopter operations, FPSO operations, tanker operations, although there are other documents that augment the safety plan. So our safety plan is divided into six sections. The first is the overview of our safety management methodology. The second part describes the field, the facilities, and the equipment that are designed to reduce risk, as well as the procedures to monitor, test, and inspect the components that are safety or environmentally critical. Part 3 of the plan describes the procedures and manuals that have been established for the operation and maintenance of the FPSO. Part 4 summarizes the work that's undertaken to identify hazards and ensure that the risks associated with those hazards are managed. Part 5 summarizes the training and qualifications established for Terra Nova, and finally Part 6 gives an overview of the major emergency response and contingency plans and outlines the logistical support that's available to us to respond in the event of an emergency.

Page 41

ROIL, Q.C.:
Q. If I can just stop you before you go further, and again try to put us in context in terms of what we heard yesterday and the day before in terms of another operator, the safety plan is a document that is discreet to this project, is that correct?
MS. FARRELL:
A. That's correct, yes.
ROIL, Q.C.:
Q. The safety management system is a part of the safety plan?
MS. FARRELL:
A. That's correct.
ROIL, Q.C.:
Q. The safety management system, I take it, may not be discreet or is it, or is that a Petro-Canada plan or system that would be used wherever Petro-Canada operates?
MS. FARRELL:
A. When we built the safety plan, we built it on our company's safety management system, and so as I go through the next section, I'll actually take you further into describing the safety management system used within Petro-

Page 42

Canada or Suncor.
ROIL, Q.C.:
Q. And at this point in time, it's still the same documentation as before, but the supports -- I'll let you get to that perhaps, yes.
MS. FARRELL:
A. You will notice as I go through here that it's tough to segregate Suncor and Petro-Canada because much of this is based on our Petro-Canada heritage, so if I use the word Petro-Canada, just please recognize that the safety plan is exactly as it was before the merger, so it's just simply that I haven't gotten used to necessarily the new name, okay.
ROIL, Q.C.:
Q. In fact, I think when we started this process, the original design was that Petro-Canada would be a party, and then we all learned of the merger.
MS. FARRELL:
A. That's right.
ROIL, Q.C.:
Q. So indeed.
MS. FARRELL:
A. Okay. So what we're going to do is walk

Page 43

through the different parts of the safety plan and this section of the plan is really where you get to see the linkage between the procedures and the practices that we established for Terra Nova back to our company's overarching safety management system. So we're going to drill into this in a little more detail.
ROIL, Q.C.:
Q. And the safety management system, again comparing expressions, the OIMS, the integrated management system that we heard of from HMDC, is the safety management system of Petro-Canada/Suncor, is that a integrated management system?
MS. FARRELL:
A. That's correct.
ROIL, Q.C.:
Q. Okay.
MS. FARRELL:
A. So our belief as a company is that safety and health of people, the protection of the environment, and the maintenance and integrity of an offshore installation, are a number of things that have to come together. First is

Page 44

competent people, both onshore and offshore. The second is effective management and operational procedures, and the third is a plant and equipment which reliably meet our performance expectations. So as I said, Part 1 is a significant section. We think it's really quite relevant to the Inquiry in understanding both our safety management systems and our safety culture, so we are going to break this up and spend a bit of time going through this particular section.
ROIL, Q.C.:
Q. Again this section is not specific to helicopter operations, but helicopter operations are of necessity covered by the system.
MS. FARRELL:
A. That's correct.
ROIL, Q.C.:
Q. Okay.
MS. FARRELL:
A. So I will review the first section which is total loss management, which is the Petro-Canada safety management system. Mr. Stacey will review the employee right communication

Page 45

and safety promotion sections. Mr. Vokey will talk about external regulatory interface. I'll then review contractor management and quality management. We'll combine those because they are very closely linked, and Mr. Stacey will then round out this section reviewing the event management and organizational structure sections of this section.

ROIL, Q.C.:

Q. Yeah, and again just to point out the obvious here in terms of the difference of structure of this presentation, rather than start with organizational structure, organizational structure will come a little later on.

MS. FARRELL:

A. That's right.

ROIL, Q.C.:

Q. And that's fine.

MS. FARRELL:

A. Okay. So I think the joint -- between the joint panel and the HMDC panel, you've probably seen varying degrees of how to depict a safety management system. You've probably seen boxes and bubbles and what not.

Page 46

ROIL, Q.C.:

Q. Visual aids.

MS. FARRELL:

A. Ours is a triangle, and so -- and our safety management system is based on what we call total loss management or another acronym, TLM. So the basic premise of our total loss management system is that if you control risk and you manage your losses, you can minimize the potential for harm to people, the environment, and our facilities. So our TLM system starts at the highest level with a policy that provides guidance to the entire organization and outlines the basis by which TLM is required to be managed. Our policy was established by and approved by our Chief Executive Officer, and I'll just give you a quick excerpt from it. "It recognizes that our operating activities and products can impact people, the environment, property, and corporate assets, and, therefore, it makes a fundamental commitment to safely manage our activities".

ROIL, Q.C.:

Q. And that is a statement that comes right from the CEO?

MS. FARRELL:

A. Directly from our CEO.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. That's correct. So as you move down the triangle, you see the next portion is the strategy, and our strategy really defines the framework for how we control risks. It's based on integrating operational reliability with risk reduction and it provides very clear governance to our Board of Directors, to our executive leadership team, and to our business unit, and regional leadership teams as well.

ROIL, Q.C.:

Q. So strategy is set at that level, right at the Board of Directors level?

MS. FARRELL:

A. This is a very top down driven safety management system, there's no question. So as you move down the triangle, you'll see the next section which is the corporate standards, and I'm going to come back to these in more detail because this really is the fundamental

Page 47

Page 48

piece of our total loss management system, but our standards define performance expectations that are required for every aspect of our business. So it doesn't matter whether we're operating in Alberta, the east coast of Newfoundland, Syria, or Libya, these are required across those operations.

ROIL, Q.C.:

Q. And would that be the same principle for operating a service station as a drilling and exploration? So whether it's upstream or downstream, again we're at very high corporate standards level, not telling you how to do the work, but setting some goals and objectives for you?

MS. FARRELL:

A. That's correct. So if you move further down the triangle, you'll see that we move into the area of business unit processes and practices, and regional and site specific procedures and practices. So if you want to think about these standards as the company saying "what is required", the business unit then in the regions have to define their processes to say how we will meet those standards. Then at the

Page 49

bottom, you'll see the comment there about individual behaviours. Ultimately we believe that every individual has to choose the behaviours that minimize risk, and I'll come back to that a little bit in terms of our expectations of our employees as we move through this section. I'm going to spend a little bit of time here talking about our standards because these are, as I said, the fundamentals that we are required to deliver on to this company.

ROIL, Q.C.:

Q. And the expression "elements" again is a term that is not exclusive to your organization?

MS. FARRELL:

A. That would be correct, yes.

ROIL, Q.C.:

Q. But they don't have to be called elements?

MS. FARRELL:

A. You'll see that with most safety management systems the fundamentals are the same. We may call them different things, we may chunk them up a little bit differently, but they're common to pretty much anyone, and particularly the oil and gas business.

Page 50

ROIL, Q.C.:

Q. So they all have leadership, they all have health and safety, those kinds of categories?

MS. FARRELL:

A. That's correct. So you'll see our system has ten elements and these are further defined into a series of sub-elements, and I guess there's probably about 120 to 130 sub-elements. So this is giving you a very high level slice of the expectations that are required of us, and essentially this is set by the corporate leadership team, and then we are required to build the work practices and procedures to ensure compliance with these standards at a high level and at a sub-element level as well. So the ten elements are noted, and you'll see that as you go through these, there's a lot of similarity to what's required by our TLM standards and what's required by the C-NLOPB in terms of its safety plan expectations. So Element 1 is leadership, Element 2 is health and safety, Element 3 is equipment integrity and reliability, Element 4 is contractor management, Element 5 is environmental management systems, Element 6 is

Page 51

employee capability and work practices, Element 7 would be audits and inspections, Element 8 is stakeholder relations, Element 9 is security and emergency preparedness, and Element 10, event management.

ROIL, Q.C.:

Q. Can you tell us which of these we're going to talk about more precisely through this presentation?

MS. FARRELL:

A. We will touch on contractor management, employee capability, and work practices, audits, inspections, security management -- sorry, security emergency preparedness, event management, and health and safety. Before I leave this, I just want to give you a sense of how the sub-elements create the expectations upon us. So if you think about what's required under Element 1, that section requires leaders to set total loss management expectations for their region, to assign resources, to communicate the plans, to ensure regulatory compliance, and to steward to our total loss management standards. So you'll see that as you drill into each of these,

Page 52

there's expectations. You probably wouldn't expect under leadership to see regulatory compliance, in other systems it might sit somewhere else. That happens to be where it sits in our system.

ROIL, Q.C.:

Q. The expression "drill", of course, has an entirely different meaning in this context?

MS. FARRELL:

A. Not as Mr. Stacey would think about drilling, no. So Element 2, for example, with health and safety, this section includes our health and safety roles, rights, and responsibilities. The requirements for us to establish health and medical monitoring, injury and illness management, and reporting systems, procedures to address health and safety issues, and as well you'll see the hazard assessment and risk management requires of us are embedded into Element 2. So within our region, members of our senior leadership team have been assigned responsibility as what we call, "element sponsors", and what that means is they have the responsibility to develop and implement and steward any action

Page 53

plans within each of these TLM elements. So Mr. Vokey, for example, has accountability for Element 6, which is employee capability work practices. Mr. Stacey has accountability for Element 3, equipment integrity and reliability, and I have accountability for Elements 2 and 5; 2 being health and safety, and 5 being environmental management systems. So as a part of that, for example, for me, one of my action plans that I have to deliver by the end of this year is the update to our safety plan, and that would be one of my accountabilities under Element 2. So we've defined those amongst the leadership team so that pretty much every member of our senior leadership team here on the east coast essentially is supposed to wake up in the morning worried about their element, and that's how we build that accountability within our region. Our compliance with these standards is assessed each year by the senior leadership team for the region and our business unit, and we are also subject to internal corporate audit against our compliance to these standards as well. The

Page 54

next section of that triangle provides corporate expectations about the development of business processes and procedures.

ROIL, Q.C.:

Q. So we're now descending down one level?

MS. FARRELL:

A. We're moving further down the triangle.

ROIL, Q.C.:

Q. Right, okay.

MS. FARRELL:

A. So these procedures and systems may flow from things that exist corporately, corporate documents that guide how we do our business, or they may be written here locally. So the Terra Nova safety plan, for example, and some of the documents I referenced earlier, the helicopter operations manual, the marine operations manual, those would be examples of locally developed business processes that have been done in support of delivering on our TLM standards.

ROIL, Q.C.:

Q. Right.

MS. FARRELL:

A. So you'll see here there's a screen shot.

Page 55

ROIL, Q.C.:

Q. So this is an image taken from the internet, is it, or --

MS. FARRELL:

A. This is our information gateway, and this is where all of our east coast management system procedures and documents reside. So all employees have access to this system and, in fact, we encourage our employees to go to the system to reference the documents that apply to their specific work areas because that gives them the most current up-to-date version of the business process supporting the work that they do.

ROIL, Q.C.:

Q. As opposed to relying on paper documents?

MS. FARRELL:

A. Well, you never know with a paper document if you're working from the most current version, so this gives everybody a very quick and easy way to drill into any area of our business. So if you look at the left hand side of that screen shot and you look under shared service units, you'll see EH&S, which is my world, and if you drill into -- if you just click on

Page 56

that, all of the procedures associated with the EH&S piece of the business will be resident there, and you can just click your way through to get to the document that you're looking for.

ROIL, Q.C.:

Q. In a Windows format that is familiar to most people.

MS. FARRELL:

A. And then you can just print if you want.

ROIL, Q.C.:

Q. So all employees have access to all of these or only to ones that are affecting their areas of work?

MS. FARRELL:

A. Everybody has access to what's in the east coast management system.

ROIL, Q.C.:

Q. Okay, thank you. They can view -- they obviously can't change, but they can view?

MS. FARRELL:

A. They can view, but not change, that's correct. There's a very stringent change management process around documentation.

ROIL, Q.C.:

Page 57

Q. I can imagine, okay.
MS. FARRELL:
A. So coming to the bottom part of the triangle, we talked about the fact that we believe that employees have the responsibility to behave in a way that minimizes risk, and so within our system, we do have some expectations of employees. One is to use defined procedures and practices. That's why we build a management system with all of those procedures. The second is to report events, hazards, near misses, and I know that in the aviation world these things may be defined a little differently from the oil and gas industry world, and so Mr. Stacey, when he goes through his sections, will actually define these things more clearly. There's a reference here to zero harm behaviours, and I'll go --
ROIL, Q.C.:
Q. Before you go on to that, there's a reference to another expression "ProAct". What is ProAct?
MS. FARRELL:
A. Our event recording database is called ProAct,

Page 58

so whenever you see the word or whenever we use it, just think of it as an event management database.
ROIL, Q.C.:
Q. Okay.
MS. FARRELL:
A. We expect employees to exhibit zero harm behaviours, and I'll talk a little bit more about that on the next slide.
ROIL, Q.C.:
Q. Zero harm is a term of art in your particular company, is it?
MS. FARRELL:
A. Yes.
ROIL, Q.C.:
Q. Compared to other companies that have different but similar directed expressions?
MS. FARRELL:
A. That's correct. The right to refuse unsafe work -- and we also expect employees to intervene to ensure that risks are identified and managed. So drilling into the last section of this is, I guess, Petro-Canada's zero harm philosophy, and as this slide notes, safety is clearly fundamental to our business

Page 59

and it's a core value for us. Zero harm is the belief that we have to work each and every day to eliminate all occupational injuries and illnesses at our work sites. This belief is reinforced across all aspects of our company and we work through our workforce engagement and our safety programs to build that culture, and our belief honestly is that this has to extend beyond the work site. It has to extend to your home and your families. You can flip a switch to be safe when you show up at the heliport to go to work. It really has to carry through your life. So ultimately this needs to become your mindset.
ROIL, Q.C.:
Q. I take it -- just so we understand, employees come on and off, we understand, every three weeks. What you're saying is they can't switch on and off their way of doing things?
MS. FARRELL:
A. Well, you won't build a safety culture if you switch it on and off. So what we're looking for is people to take that home with them.
ROIL, Q.C.:
Q. So when they're working at home, they carry on

Page 60

the same sort of strict processes that they do at work?
MS. FARRELL:
A. That's what we'd like. So as we introduce safety programs and initiatives, we often extend those to off the job type thing. So, for example, we've over the years done home safety programs to encourage people to build a culture within their house so that they have things like a fire evacuation plan, that they have ladders so that they can get out of a second floor bedroom if there's an event. In terms of the exposure based safety program which we'll talk about a little bit later, we actually give every employee DVDs to take home with them so that they could generate these types of discussions within their family. We send a safety magazine to people at their homes. So that's the extent to which we would like to see zero harm become a mindset, not just something you do when you're at work.
COMMISSIONER:
Q. So you're trying to bring about a way of life?
MS. FARRELL:
A. Yes.

Page 61

COMMISSIONER:
Q. That incorporates safety?
MS. FARRELL:
A. Yes. So we'll talk a little bit about our zero harm reporting card. We ask people to bring them home so that it creates that mindset that you don't behave differently at home than you would expect to behave at work. So I'll now hand over to Mr. Stacey and he'll take us through the employee rights and communication and safety promotion sections.
MR. STACEY:
A. Thanks, Ms. Farrell. As Ms. Farrell said, the next element -- get set up here. The next element in Part 1 of our safety management system covers employee rights or worker rights. Safety related actions, whether it be onshore or offshore, is a condition of employment, everyone must participate. The three key principles you see on the right hand side of the slide were developed by the workforce during the construction phase of the FPSO.
ROIL, Q.C.:
Q. Sorry, these were actually developed by the

Page 62

workforce themselves, were they?
MR. STACEY:
A. That's right, the workers -- we asked, you know, what is fundamental to delivering work and what do you believe in, and that's where these principles came, and I'll read them for you. It says that, "I know that no job is so routine or urgent that it cannot be done safely. I understand and follow all the rules and procedures, I report all hazards, hazardous conditions, near misses, and accidents". I should point out that the words "near miss" in that last quote don't refer to an aviation near miss. I'll talk more about definition for near miss, and I think it was covered also by HMDC.
ROIL, Q.C.:
Q. Yes.
MR. STACEY:
A. So these words, as I said, came from our workforce, not from management, and they highlight the reality that no two jobs are the same, something is different each time a task is performed, even if it has been done 100s of times before. The rules and procedures are

Page 63

there to protect everyone and help us deliver a better quality product. Reporting hazards, near misses, accidents, facilitates learning and helps us to prevent recurrence. Honouring these principles takes significant time and effort. Suncor leadership reinforces the requirement to take these -- to take the time to live these principles by implementing processes such as our zero harm card that we've got here that help individuals and teams think through activity before starting work.
ROIL, Q.C.:
Q. We actually have that card on a slide later on, don't we?
MR. STACEY:
A. We do. I'll talk more about that later. We also do this by stopping jobs and checking with people. Supervisors will go out and workers are encouraged to stop work and assess what it is they're doing and make sure that they've identified the hazards, and with key messages at safety meetings. My personal view is actually that safety starts at home, and that we should be bringing it to the workforce or to the workplace, and if you can think of

Page 64

incidents that have happened to families while they're at home, these are the kinds of things that drive home the need to work safely so that you can return back home and enjoy your life the same way you came to work. Worker rights include the right to know, the right to participate, and the right to refuse. The provincial occupational health and safety regulations are integrated into Suncor's safety management system, and we support worker rights by ensuring that OH&S committees are in place and functioning on all our installations by establishing systems such as permit to work, tool box talks, and I don't know whether that's a term you've heard --
ROIL, Q.C.:
Q. We have.
MR. STACEY:
A. You have, okay. Pre-job meetings to ensure that workers are aware of hazards and they participate in the mitigation plans, knowing what it is you're going to do, the people who are involved in that are the best ones to set those mitigation plans. That's the basic level, it's at the bottom of that pyramid.

Page 65

Also by conducting orientations and new worker programs, and by building and implementing communication tools like ProAct that Ms. Farrell described earlier to provide a means to effectively communicate issues and opportunities and to track actions. Let me define the acronym for you so you know what ProAct stands for. We said that it's a database and it houses all the information. It stands for Petro-Canada Reporting Organizing Analysing Corrective Action and Tracking. So it's about getting all this information in and having a place to -- a facility to analyze it and track it and distribute it and let people have access to it. It's about -- it's designed to capture information about and manage loss events, those that have already occurred, and situations that, if not managed, might need to a loss event.

ROIL, Q.C.:

Q. Sorry, I have a few questions here --

MR. STACEY:

A. Okay.

ROIL, Q.C.:

Page 66

Q. I think then --

MR. STACEY:

A. Do you want me to go back?

ROIL, Q.C.:

Q. Yes, go back, please, and we'll probably take our break after this couple of questions.

MR. STACEY:

A. Okay.

ROIL, Q.C.:

Q. Again the ProAct system, that database, do employees have access to that or how does that -- are you going to cover that in more detail later?

MR. STACEY:

A. I can certainly answer it now. Employees do have open access to ProAct, yes.

ROIL, Q.C.:

Q. The other question that I have comes out of comments we've heard in this room, and I've asked other people about it, how do you deal with, or have you experienced a situation where employees are reluctant to refuse, reluctant to report, reluctant to file an observation even that, you know, I'm snitching on my co-worker if I talk about a hazardous

Page 67

situation that I've seen my co-workers involved in? How do you avoid or how do you promote and encourage reporting of that to offset, I think, the natural sort of view that I'm being a snitch and that's not fair to my co-worker?

MR. STACEY:

A. I've heard some of the discussion around that and I think I understand that and agree with that fundamental principle that there may be a reluctance to report a hazard or an incident that's occurred for fear of reprisal, and I think that was -- and I'm moving back in my career and I'm sure in others, that maybe 15 or 20 years ago that might have been the case, and things like the zero harm reporting card, and on the drilling rig there's another system called START, which is a similar system. These systems grew out of that issue and really were set up to provide a means for people to have an anonymous way of reporting a hazard or an incident, and the systems and supports that go around that at the leadership team really support -- once that incident or issue is raised, it's in the public domain.

Page 68

The leaders are then accountable and responsible for ensuring that it's taken to closure. So I understand that, but I think that -- my sense now is that the communication and the openness that exists in our workforce is real and that the workers are comfortable and do bring forward their issues to us, and that's how we've managed to bring our safety statistics to where they are today, with the involvement of the workforce through that open communication.

ROIL, Q.C.:

Q. How then do you explain the comment that somebody says, well, I called my Member of the House of Assembly to tell her or him what my concerns were rather than to tell you? How do we -- how do we break that cycle if it is happening?

MR. STACEY:

A. I think that not every individual will have gotten to that place, but certainly the tools are in place to help those people get there, and my observation again is that the vast majority of our workforce is there, and that those individuals have access to those tools

Page 69

to be able to get themselves into the place and comfortable with the fact that they can bring issues forward without fear of reprisal.

ROIL, Q.C.:

Q. Is there a dichotomy then between the younger workers who perhaps are more familiar with the new culture as opposed to the older workers, who as you say, years ago might have worked where you worked where that was a concern?

MR. STACEY:

A. I haven't seen that.

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. If I can just make one comment. Mr. Stacey mentioned the ProAct and it can be anonymous or people can record their names, but also through the C-NLOPB any employee or contractor worker offshore, if they have an issue, they can forward it directly to the C-NLOPB, and then we will get a request from the Board outlining what the concern is and we have to answer that to the Board's satisfaction. So there are a number of mechanisms that are anonymous. Our preference is to deal with our

Page 70

employees straight up. I mean, that's the easiest way to resolve issues. So, I mean, our first recommendation is through supervisors, but then as Mr. Stacey said, there are the other mechanisms through ProAct where issues can be addressed openly or anonymously.

ROIL, Q.C.:

Q. Okay, I won't cut you off there, but that's probably a good time for us to take a break. If you need to go back to it when we resume, please feel free to; otherwise, we'll move on.

(RECESS)

ROIL, Q.C.:

Q. Panelists, unless you want to add something further, I've pursued my questioning on that area, so we can move on to the next slide.

MR. STACEY:

A. The next slide, please. One of the documents in our east coast management system that Ms. Farrell reference earlier is the Terra Nova Occupational Health and Safety Committee terms of reference. That document outlines the objectives of the FPSO OH&S Committee, and it includes assisting and identification,

Page 71

recording, examination, and resolution of health and safety concerns, recommending practical procedures and conditions to help achieve the highest possible degree of health and safety in the workplace, promoting educational programs to improve health and safety knowledge on board, identifying hazards through workplace surveys, reports from workers and other means, and supporting the functioning of the safety management system and other initiatives for the improvement of on board safety culture.

ROIL, Q.C.:

Q. Do I take it then that something doesn't have to be a hazard, a near miss, or an incident or accident, to come up at an occupational health and safety meeting?

MR. STACEY:

A. That's correct, the forum is open.

ROIL, Q.C.:

Q. Okay.

MR. STACEY:

A. The Terra Nova OH&S Committee has been in place since our project days in Bull Arm, and has played an important role in enhancing the

Page 72

health and safety on the installation. The FPSO OH&S Committee is made up of worker and management representatives, including individuals form each of the major departments, including maintenance, vessel operations, production, and others. The committee members serve two years terms, and there's roughly ten people on the committee. There's two committees on that three week rotation, so that's a total of about 20 people that contribute to that effort.

ROIL, Q.C.:

Q. How do you then deal with the MODUs, the drilling rigs that are brought in from -- where you have other contractors operating them?

MR. STACEY:

A. Very similar practice, roughly the same numbers.

ROIL, Q.C.:

Q. So they have a separate OH&S Committee?

MR. STACEY:

A. They have a separate Occupational Health and Safety Committee on the rig, and as Mr. Vokey pointed out earlier, it's a self sustaining

Page 73

installation with its own OIM and a senior representative from Petro-Canada, or Suncor, and all of the same things that would happen on the FPSO happen on the rig from a safety perspective.

COMMISSIONER:

Q. About how many people are on the MODU?

MR. STACEY:

A. Maximum capacity was 146 on the Henry Goodrich. Typical would be between 110 and 130.

ROIL, Q.C.:

Q. And is there any doubt in your mind, or to your knowledge, anybody else's mind, as to whether occupational health and safety meetings or committees are entitled to deal with transportation issues, helicopters, travel by vessels, those kinds of items?

MR. STACEY:

A. They absolutely do deal with those matters and the helicopter operations task force is a great example of how the operational health and safety committee facilitated the distribution of information related to helicopter activities and the return to

Page 74

service.

ROIL, Q.C.:

Q. So that wouldn't have been the first time that an issue of something to do with transportation suits, the helicopters themselves, or vessels and those kinds of things, that would not be the first time they were ever brought up in occupational health and safety?

MR. STACEY:

A. I couldn't speak to the specifics, Mr. Roil, but generally the occupational health and safety committees agenda deals with anything of a safety related matter or of importance to the workforce.

ROIL, Q.C.:

Q. And again a question that I think has an obvious answer, but I'll ask it, what is the perception of employees and what is the reality of when they are commencing work and ending work in relation to the two week tours or assignments that they do -- not two weeks, sorry, the 21 day work periods, when do they start their work?

MR. STACEY:

Page 75

A. When they check in at Cougar for transportation offshore, and when they would leave the heliport after picking up their luggage.

ROIL, Q.C.:

Q. Okay.

MR. STACEY:

A. Committee members have also played a key role in a number of other initiatives, including the selection of our exposure based safety program that Ms. Farrell referenced earlier, Safe Start, participation and investigations. So if there's an incident on the installation, many times there will be an occupational health and safety committee member that is part of that investigation committee or team, input into the safety performance improvement initiative and review, and input into CAPP initiatives such as escape and evacuation guidelines, and training and qualification standard practice. Can I have the next slide, please. The tragedy on March 12th represents the most serious type of incident or event that can occur in our business. Effective management of events requires timely and

Page 76

appropriate reporting, as well as follow up and investigation. We require all injuries, environmental incidents, damage, and near misses to be reported. Again for clarity, a near miss is something that happened, which under slightly different circumstances, may have resulted in an injury or damage to equipment on an installation.

ROIL, Q.C.:

Q. We had an example given the other day about a book on the edge of the shelf is a hazard, a book falling off the shelf onto the floor would be the example of a near miss, the book falling off the shelf to the floor, but hitting somebody on the toe and injuring them would be an incident or an accident.

MR. STACEY:

A. That's a great example.

ROIL, Q.C.:

Q. It's a very simple one, but I think --

MR. STACEY:

A. It is, but it really exemplifies hazard, near miss, and event.

ROIL, Q.C.:

Q. Yeah.

Page 77

MR. STACEY:

A. Once reported, management ensures that the event is appropriately addressed, and that can include review at the morning FPSO meeting where correctly actions can be initiated. Corrective actions are closed after the appropriate investigation, follow up, and input into the ProAct database. The outcomes are communicated back to the employee who raised the report, and all employees again have access to ProAct database to enter, track, review, or otherwise look at the status of actions or the close outs.

ROIL, Q.C.:

Q. Just as an aside, but talking about employees having access, does anybody ever track how often employees access something like ProAct, or is there any way that you could see whether you're getting a lot of hits or a small number of hits?

MR. STACEY:

A. That's a good question. I know that the number of events that are entered into the system are tracked. I'm not sure if you can actually see how many people had made entries.

Page 78

Ms. Farrell, do you know?

MS. FARRELL:

A. I'm not aware that we can do that.

ROIL, Q.C.:

Q. Okay. I just know from my own searching on the web that you now see sites where it'll say that there have been so many visits. So I'm not sure whether that would be a useful tool for you to be able to -- as you say, you may have it there, just you don't know the answer to the question right now. The issue of what is reported you say, Mr. Stacey, injuries, environmental incidents, damage events, near misses, how do hazards fit into that scheme? Are hazards supposed to be reported, required to be reported, if somebody sees a hazardous condition, what is the expectation of the workforce or from the workforce?

MR. STACEY:

A. We expect that if they see something, that it would be reported. In fact, we encourage it. We have efforts such as hazard hunts where we'll take a specific group of people and go around looking for hazards, and usually we'll take workers from a different area of the

Page 79

installation to go look at somewhere they're not familiar with, so that fresh eyes might have an opportunity to see a hazard that someone else who works in there on a daily basis wouldn't see.

COMMISSIONER:

Q. A good example, that camera behind Mr. Roil, is at a height which a tall person would run into, and Mr. Vokey observed the other day that that would not be allowed unprotected like that if it was offshore.

MR. STACEY:

A. That's correct.

ROIL, Q.C.:

Q. We've actually added some protection to it.

COMMISSIONER:

Q. We will address that.

MR. STACEY:

A. So we do hazards hunts, we go actively looking for them.

ROIL, Q.C.:

Q. Yeah, that's the first time I've heard that expression, but it's one that's easy to remember.

MR. STACEY:

Page 80

A. So now you're looking at the zero harm card and it was developed to support our exposure based safety program. We expect our contractors, including the MODU, such as the Henry Goodrich, and our helicopter operator, Cougar Helicopters, to have similar cards for hazard reporting based on their respective safety management systems. The zero harm card works in many ways to support improvements in safety performance. It can be a checklist. If you see the front side of the card there, before, during, or after a job, for example, evaluating how your body needed to be positioned to carry out a task, especially if you're going to have to repeat that a number of times. It's also a good means to report good behaviours or procedures or actions that can be shared with others. It also is a means to report hazards and bring resources to bear on an issue. The zero harm card makes it easy for every member of the crew to participate, regardless of their access to computers, and we generally get at least one card from everyone on the installation on a weekly basis. There is an expectation -- sorry, did

Page 81

you have a question?
ROIL, Q.C.:
Q. I was going to say I see a place for the signature, or the person's name, the observer's name. Is that required to be completed?
MR. STACEY:
A. No, ti's not required that you put your name on it. It's encouraged because we want to be able to give you feedback.
ROIL, Q.C.:
Q. Okay, yeah, and down at the bottom it says, manage your risk, complete your stepback 5 by 5. Is that anything that is an expression that has any interest to our Inquiry?
MR. STACEY:
A. Stepback 5 by 5 is another process for evaluating the workplace before starting work. It refers to taking five steps back and looking at what you're going to do for five minutes. There's an expectation for everyone on the installation to contribute to making it a safe workplace, and zero harm cards are one way of measuring that commitment. The cards are available at many sites on the

Page 82

installation and also throughout our offices in St. John's and elsewhere. We expect that if our employees notice a hazard, for instance, in a contractor's facility, that they'll report that hazard too and they can use our zero harm card to do it or they could use the card that would be at the facility that they were visiting. The important thing, as you pointed out earlier, is that hazards get reported and events get reported so that they can be investigated and improvements and lessons learned can be shared with our workforce and with others. The next slide, please. I'm going to shift gears now and talk about communication and safety promotion. Clear messages about expectations for safety are essential to align workforces. Landing common messages requires a significant amount of effort, and it's my experience that if there's a communication void, that people will make up their own message to fill that void, and leaders in our organization are expected to be good communicators and safety champions, but that's not necessarily the only place that those communicators and safety champions can

Page 83

come from. In fact, it's most powerful when that comes from the workforce.
ROIL, Q.C.:
Q. So is a safety champion an expression that is used within your workforce?
MR. STACEY:
A. It's certainly a general term in the industry.
ROIL, Q.C.:
Q. Okay, it's not unique to Suncor or Petro-Canada?
MR. STACEY:
A. It's probably the other end of what we spoke about earlier about the person that has reservations perhaps about bringing something forward. A safety champion is the one that sees it and says I know what we need to do about that and is out in front of it, and we encourage that. Effective communications really is also fundamental in building the safety culture. You have to get the messages out, you want people to see and believe. Can I have the next slide. So there's a variety of offshore safety communication mechanisms, and we spoke about daily shift handover meetings at the start and end of each shift

Page 84

that gets worked, with each different discipline that's on the installation. Discipline is our term for a department, vessel, production, maintenance, each of those. We refer to them as disciplines. The occupational health and safety committees are in place and functioning on all our installations, and we said they meet at least once every three weeks, and the Minutes from those meetings are posted for everybody to review, and membership in the OH&S Committee is encouraged. Suncor needs the OH&S committees to be an effective vehicle for leading safety performance improvement. There's a wide array of other regularly scheduled engagements that are held to align the workforce with our common safety goals, and those include, as we said, shift handover meetings to review -- in there you'll review the specific hazards or events that have occurred in that last 24 hour period, so a focus on the things that might be active at that time, conditions, or other things that might be relevant. There's meetings that they'll hold once per rotation with each of

Page 85

the disciplines or departments to focus in on their specific things, maybe looking at their work scope going forward, the learnings that might have happened on the last shift, to bring them forward, and general safety meetings that are held again once per rotation, but with the entire installation, and those are focused more the higher level issues. The entire crew is invited and there could be messages from the CEO, or things that were installation -- broadly applicable to the installation there. We encourage open feedback. We want to hear from the workforce, and I know there's many different means for us to do that. We've spoken of a number of them. I think it's also important to note that our leaders generally have their doors open, and the invitation is there for individuals, if they aren't comfortable speaking in a public forum where there might be a lot of people, that they can go visit the leader on a one on one basis, and then written communication, the zero harm card, ProAct, they're good examples of that. The next slide, please. Contractors that are employed by Suncor, they share in the

Page 86

responsibility for delivering work in a safe and environmentally responsible manner. Forums are held to bring Suncor and contractor personnel together to discuss and lead safety performance. The forums are a valuable vehicle that everyone working on a Suncor installation has a common understanding of our expectations, the issues that we're dealing with, and our plans of action to address those issues. We usually have between 30 and 60 participants and the focus is on leaders and safety professionals at the forums, and we want those leaders and safety professionals from all of the organizations that support our business delivery. The three of us are good examples of the leaders that attend those forums. I know we've all attended many. The contractors need to hear the expectation from the operator so they understand what it is that we're trying to achieve. It also creates, as I said earlier, the opportunity for the contractors and the individuals to see the safety message and believe that it is coming from the heart, to align the objectives of the organizations to make sure there's no

Page 87

things that might be pulling in a different direction, we want everybody pulling in the same direction, and to share the learnings between organizations that might not otherwise engage. There might be two service providers that don't see each other and we're the vehicle to bring them together, and then share that learning across all of those organizations.

ROIL, Q.C.:

Q. We learned with other operators that much of the work on board the platforms, the rigs, the facilities, is contracted out to different companies and some of them are quite large and quite sophisticated, as I suspect we'll learn that Cougar Helicopters is, and some of them are quite small. You know, the expression "mom and pop operation", or just a family operation was used to describe the smallest of one of them. How do you -- do you still have expectations for the small companies that they have to have the same diligence into safety in their regimes?

MR. STACEY:

A. Yes, absolutely.

Page 88

ROIL, Q.C.:

Q. So size doesn't matter?

MR. STACEY:

A. Size doesn't matter, and we encourage them, and I think once they start attending, they recognize that they're able to -- the term that we use, I don't want to be flippant, but it's "steal shamelessly".

ROIL, Q.C.:

Q. Borrow.

MR. STACEY:

A. Safety is something that's not a commodity that belongs to any one particular organization. If you see it from someone else -- in fact, stepback 5 x 5, I believe, is an Exxon originated program. I stand corrected, but I think that's where we got it from.

ROIL, Q.C.:

Q. Okay, so that's been stolen shamelessly?

MR. STACEY:

A. Yes. Contractor leaders then cascade the safety messages to their workforce. Where a contractor safety management system is used to support our work in a significant fashion, for instance, the drilling rig, we would compare

Page 89

their system with ours to ensure that it meets all of our expectations, and we refer to that major substantive process as "bridging". I don't know whether I need to go into that in any more detail.

ROIL, Q.C.:

Q. No, well, just take a moment to -- how would bridging happen, what kind of a fact circumstance can you give us where you would need to bridge your system to somebody else's system?

MR. STACEY:

A. You heard ExxonMobil talk about -- or Hibernia talk about OIMS.

ROIL, Q.C.:

Q. Yes.

MR. STACEY:

A. And you've heard Ms. Farrell talk about total loss management in Suncor. TransOcean also has a health safety and environment management system for operating their installation, and at the outset of contracting that drilling rig to work for us, we would bridge to their safety management system, ensure that there are no gaps, and if there are overlaps, decide

Page 90

whose safety management system would govern in a specific situation, and that bridging document would then, when it was completed, be submitted to C-NLOPB.

ROIL, Q.C.:

Q. As a part of what, as a part of your safety plan, you mean?

MR. STACEY:

A. As a part of the operations authorization for operating the drilling rig. It's interesting to note that there's very few differences between the safety management systems. I think Ms. Farrell said it earlier, that the elements are all there, they're just sliced and diced in a different manner.

ROIL, Q.C.:

Q. Right.

MR. STACEY:

A. This slide outlines additional means we use to share safety related information. I think it's fair to say that e-mail or electronic media have certainly changed the way we communicate. Our workforce have electronic access to many systems networks to seek out and receive safety related information,

Page 91

including ProAct, e-mail, and the internet. Suncor encourages, as we said, sharing and distribution of safety related materials. If something significant happens somewhere in our company, we strive to ensure that everyone knows about it and learns from it as quickly as possible. In fact, ProAct has what's called a major event notification feature where, for instance, if a person received a cut and had a stitch as a result of that, or had a bump and got an prescription anti-inflammatory medication, that would qualify as a major event notification and a list of leaders and individuals safety professionals mainly in our company would get notified of that through ProAct, and then they have the opportunity then to review the incident at a high level and decide is it applicable to us, do we need to track it, what can we learn from it, and they've got the number to be able to refer back to it. Along with the electronic media, we also print, post, and distribute paper copies. We have the old fashioned bulletin boards on the installations offshore, and all of this is our effort in striving to

Page 92

be transparent, while remaining fact based to avoid speculation. Our leaders are encouraged to visit onshore and offshore work sites, and we have schedules that we have in place to drive those leadership visits, and that again is around face to face contact, trying to ensure that leaders and individuals see each other so that they can have an exchange on safety related messages and objectives, really as seeing is believing. To encourage and lead those that might not fully share in our view of safety, but that are there, we have a rewards program. So we focus on leading measures like participation in the zero harm program, and those kinds of observation based things to encourage people to participate. Before leaving this section, I just wanted to take a minute and talk about our safety culture. We believe our safety culture benefits from our commitment and that's demonstrated by our leadership teams and individuals, and we've designed equipment and procedures that consider the risks and put in place the mitigative measures to manage risks and reduce them. By providing people with the

Page 93

equipment and the procedures and the tools they need to do their job, by reinforcing the expectations that even with all those things in place, safety is still the responsibility of everyone who works at our work sites, and each day that somebody fills out a zero harm card or attends an OHS meeting, or shares a safety moment at the start of work, those are all measures of our safety culture, and as it improves, we're there gauging and monitoring that to try to keep a sense on the pulse of that culture.

ROIL, Q.C.:

Q. If I can just ask you a question or two arising out of that. There is an expression called "familiarity breeds contempt", and I know from my own personal life that sometimes if we see something a lot, we tend to ignore it. So people who fly a lot on an aircraft, don't tend to watch the briefing at the front of the aircraft because they've seen it 20, 30, 50 times. How do you stop all of this information from becoming that kind of thing, you know, "look, I've heard it before", how do you stop that kind of human reaction to

Page 94

familiarity or over familiarity?

MR. STACEY:

A. I certainly agree that that familiarity can be there and that the programs that we have, we work on changing them, looking at different areas. For instance, health promotion would be a good example. We don't just say health promotion, you know, you should live healthy. We'll drill down into the specifics and one month we'll focus on eating right, the next month we'll focus on exercise, the next month we'll focus on some other area of health promotion to try to keep it fresh, because it is a chore, it is something that has to be constantly stewarded in order to deliver results.

ROIL, Q.C.:

Q. The other expression that I'll ask you about is that it is said that many of us in life are motivated by either carrots or sticks. What is the principle upon which your safety program is developed, to what extent are sticks used; in other words, punitive measures, and to what extent are carrots, i.e. incentives, how does that play, if at all?

Page 95

MR. STACEY:

A. I would say that we have a very large bag of carrots.

ROIL, Q.C.:

Q. Okay.

MR. STACEY:

A. Mr. Vokey.

MR. VOKEY:

A. Okay, as noted in our review of the total loss management strategy, compliance with environmental health and safety security laws and industry standards are fundamental to our business. In essence, it's our licence to operate. In this section, I'll review some of the key elements of our Terra Nova's regulatory interfaces. We reviewed the regulatory regime in some detail, but I'd just like to outline a couple of things here. The Terra Nova FPSO and drilling rig operate under three distinct regulatory regimes; the C-NLOPB, Lloyd's Register, and Transport Canada Acts and Regulations applicable to Canadian flag vessels. The mandate of the C-NLOPB has been covered in detail, so I won't go into that in any greater detail. Our FPSO is a

Page 96

Canadian flagged vessel; therefore, Lloyd's Register is accountable for verifying the design, the construction, and that the operation satisfies classification requirements. The FPSO is also subject to the Canada Shipping Act, and the regulations as administered by Transport Canada Marine Safety. Finally, as noted at the bottom of the slide, the C-NLOPB requires a certification process for the design review, construction, and operational surveillance for offshore installations by a certifying authority. In the case of Terra Nova, Lloyd's Register is the certification authority.

ROIL, Q.C.:

Q. Before you leave the certification authority, the question came up in an earlier presentation about the types of reporting that you receive from these classification societies, and then the communication, who does this go to. First of all, in your experience, is the reporting by the classification societies, such as Lloyd's Register, is that simply reporting on compliance or would that have also forward

Page 97

looking aspects to it; in other words, that you should look at this as a new innovation that you should bring in? What sort of role those innovation or advice apply in that kind of reporting?

MR. VOKEY:

A. Lloyd's role would primarily be compliance.

ROIL, Q.C.:

Q. Compliance, okay.

MR. VOKEY:

A. And that's through their own classification society, or through the C-NLOPB, what the Board's requirements are. So they report both in terms of their class and our compliance to the C-NLOPB.

ROIL, Q.C.:

Q. That was my second question, the report from Lloyd's doesn't just go to you, it goes to the C-NLOPB as well?

MR. VOKEY:

A. That's correct.

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. The Henry Goodrich is under -- when under

Page 98

contract to Suncor is classified by DNV, which is a similar classification society to Lloyd's. The oil and gas industry is not subject to Transport Canada Aviation Regulations, as such. Our aviation contractor, Cougar Helicopters, is regulated by Transport Canada Aviation. The Board has incorporated specific requirements of operators in relation to helicopter and marine vessel operations. Operators are then required to satisfy to the Board that they meet those requirements through their safety plans and supporting documentation, and during the joint panel presentation we talked about the Board's regulations and guidelines, and they are presented here in summary fashion. So in terms of the safety plan, that would cover things like contingency and mutual aid. Petroleum installation regulations talk about helicopter design, geophysical -- it'll talk about passenger travel by helicopter and transportation suits. So it is covered in a number of different areas. In the joint panel presentation, we also mentioned that an operations authorization requires renewal

Page 99

every three years.

ROIL, Q.C.:

Q. Yes.

MR. VOKEY:

A. Terra Nova's last renewal took place in 2008, and our safety plan was updated as part of that renewal. Suncor was the first operator to apply under the Board's new process for that.

ROIL, Q.C.:

Q. In what year and what --

MR. VOKEY:

A. It would have been 2008. I believe 2008, yes. Previously there were multiple applications required to conduct a variety of activities. This often created duplication and effort. Under the new guidelines, a variety of authorizations have been rolled into one, so our current authorization now includes authorizations for drilling, production operations, vertical seismic programs, and a variety of well operations, and the intent of that part of the regulatory reform was to provide more streamlining on behalf of the Board.

ROIL, Q.C.:

Page 100

Q. Previously these would be separate operations?

MR. VOKEY:

A. They would all be separate documents.

ROIL, Q.C.:

Q. Separate documentations for each one of these things?

MR. VOKEY:

A. That's correct. Our communication with regulatory agencies is significant. This slide depicts the formal communications conducted between Suncor Energy, the C-NLOPB, Transport Canada, and Lloyd's Register. The Board has produced its incident reporting and investigation guidelines, which provides all operators with their requirements. In addition, there are daily, monthly, and quarterly reports, as well as regular meetings to review specific activities and issues. If the Board receives a complaint from a worker, it will also require the operator, in this case Suncor, to investigate and provide a comprehensive response. Our relationship with Transport Canada and Lloyd's Register would be similar, with regular reporting requirements as outlined on the slide. Just in terms of

Page 101

the Board and Lloyd's, in 2009 there was literally hundreds of formal documentation between the three parties; Suncor, the Board, and Lloyd's, regarding Suncor's operations. So it's not on an isolated basis.

ROIL, Q.C.:

Q. You used the expression, Mr. Vokey, "it's highly regulated", and this issue came up with the earlier operator. I think they were reluctant to say it was over regulated, but I think the expression "highly" came out. Is there enough regulation, from your company's perspective, is there too much, or is there streamlining -- how could it be made better, if at all?

MR. VOKEY:

A. I believe it's definitely enough. Part of the challenge is some of the regulatory bodies are interested in performance-based goal setting, and some of the regulatory bodies are still extremely prescriptive. So that is a bit of a challenge. As an example, Lloyd's Register, based on our operating performance and our maintenance regimes, might say you don't have to inspect a piece of equipment every year.

Page 102

You can push it out to two years based on your operating performance and our due diligence. There are other regulatory bodies that would say, no, forget it, you have to do it once a year. So there is a bit of that. Having said that, we are seeing signs of regulatory reform, but the requirements are somewhat different on occasion. In addition to the reporting that we are required to provide, we are also subject to audits and inspections by the Board, Transport Canada, and Lloyd's Register. The Board conducts annual audits and three inspections on each of our facilities every year. The Board's audit include compliance with, you can see them there, regulations, authorizations, and any conditions on the authorization. They also audit our management system, safety plan, environmental protection plan, and our incident and event management, and that's where the Board actually comes out to our facility and to our office in St. John's. They are very versed in our ProAct System. They can go into it in great detail and find out what's been populated, what the issues

Page 103

are, but more importantly, what our response has been to those to get closure on incidents on hazards. So it is a very transparent system and the Board audits us on this very diligently. During the Board's audits and inspections, they also take the opportunity to meet with worker representatives on the facility, and that's the OHS Committees, to understand any issues or concerns that workers may have. All offshore workers, as I indicated earlier this morning, have direct access to the Board if they wish to raise an issue with the Board, in particular, if they wish to remain anonymous. Additionally, on an annual basis the Board meets with representatives of all offshore OH&S committee members to discuss worker type issues. The Board also conducts security audits of the operators and the first security audit for Terra Nova was conducted in 2009. Lloyd's also performs quarterly surveys and inspections, and I'll speak a little bit more about that in a minute. It should be noted that periodically Transport Canada will conduct monitoring surveys of Lloyd's as their

Page 104

delegated representative, with their last being done in 2009. So while Lloyd's have delegated, they still do an audit on the people that they've delegated to. In this case, Lloyd's Register.

ROIL, Q.C.:

Q. Perhaps this might be a place again to ask a question that you don't have to answer fully now, it might come out a little bit more in your presentation, but I don't think so, and that is it seems to me there is a lot of auditing and a lot of inspecting done by different agencies, and we heard in the evidence from HMDC a concern raised by an aviation auditor that there might be -- that Cougar was being over audited, there was too much -- not too much, there was so much scrutiny on them that it directed people away from the business that they were primarily hired to do, and that is fly helicopters and fly them safety. Are there opportunity for synergies here, do we have a situation where you're diverted too often to the audit process, or again is it able to be handled within your structure?

Page 105

MR. VOKEY:

A. First of all, in the case of Cougar, I agree with that assessment and that was primarily, I believe, following March 12th incident.

ROIL, Q.C.:

Q. Yes.

MR. VOKEY:

A. You know, everybody was in Cougar's face, and for a good reason, but there were certainly opportunities for synergies, and when we did the audit of the maintenance or management system of Cougar, that's why we collectively went out. There is opportunity there for streamlining definitely, and additionally, I believe when we do audits, you know, there's things that are critical, and I think HMDC talked about it the other day, you know, it's a high, medium, and low, and all too often you get a lot of opportunities or things to look at for opportunities, but if the expectation is that you actually look at it, there is the potential that you're taking efforts away from what's more important. So it's just being focused when you do audits more than anything else. As noted -- is that it for that?

Page 106

ROIL, Q.C.:

Q. Yes, that's fine, thank you.

MR. VOKEY:

A. As noted, Lloyd's Register has been contracted as the class society and certifying authority, and has the delegated scope of work for Transport Canada Marine Safety. The minimum number of surveys and audits conducted by Lloyd's would also be four per year, but depending on the certification, inspection, and maintenance schedules on the various pieces of equipment, that number may increase. Historically, Lloyd's have averaged ten plus audits and inspections per year on the FPSO with a typical duration of the quarterly surveys being two to three days, and the annual audits taking upwards of a week for a team of auditors. The scope of the audit program is noted on the lower bullet point on the slide, and I'll just identify a couple of them there.

ROIL, Q.C.:

Q. Yeah, these don't have particular impact, or do they, on helicopter transportation?

MR. VOKEY:

Page 107

A. They don't. It's just primarily on the vessel and its operating systems, so electrical systems, hull and topside structures, marine safety and utility and lifting equipment, and also lifesaving and safety appliances. The regulatory regime for the offshore oil and gas industry is complex and general prescriptive, but as I said, we have seen signs with the recent reform of the Board where it's more goal based and less prescriptive. The regulatory regimes vary based on the type of facilities operated, and regulatory requirements do vary in a number of areas, and I gave you an example a few minutes ago, whereas one body might say an appropriate inspection is once every two years, another might say it has to be done every year. So we do see some of that. As indicated also, there is some overlap and duplication in areas such as event reporting. There are a lot of players involved and a lot of certification agencies, and there is a lot of paperwork.

ROIL, Q.C.:

Q. Just so we understand, and the persons who are watching this outside the room understand, I

Page 108

don't think we've really spoken a lot about the difference between prescriptive and performance based. Is there a way you can find quickly an example of one versus the other in a similar fact situation, so we can sort of focus on what you mean when you say prescriptive versus performance based?

MR. VOKEY:

A. Historically, regulations have been prescriptive. In the case of the drilling world, you will test the blow preventers every two weeks.

ROIL, Q.C.:

Q. Right. That would be an example of prescriptive?

MR. VOKEY:

A. That's prescriptive. In terms of goal setting, the certification authorities and the regulator would take a look at your programs, your safety management systems, your maintenance management systems, and they say, you know, you're doing all your PMs --

ROIL, Q.C.:

Q. Preventative maintenance?

MR. VOKEY:

Page 109

A. Preventative maintenance on a piece of equipment every two weeks. You function it, you know, on an ongoing basis as part of your business; therefore, based on what you've demonstrated to us and the integrity level that you've demonstrated, you don't have to automatically test that every year, you know, however, you know, you will test it as an extended frequency or at the latest every two to three years. So it gives you flexibility in terms of your business or operation, based on your demonstrated performance.

ROIL, Q.C.:

Q. So flexibility doesn't come until the performance is first shown?

MR. VOKEY:

A. The performance has to be -- the performance and integrity has to be demonstrated up front, and we've had cases in the past where we wanted to go to Lloyd's Register, you know, to push out a maintenance routine because we didn't see the benefit, and the first thing we did is say, okay, what is our operating history, what is our maintenance management procedures on this, and you take a look at it

Page 110

and quite often through the technical leadership and operational leadership, we'll say, no, we're not at a point -- we're not comfortable enough at this point to apply for an extension, so we'll stay prescriptive. S it has to be based on your performance, you know, your historical performance. That pretty well covers the regulatory regime, and like I say, it was at a bit of a higher level than -- because we did go into detail last week.

ROIL, Q.C.:

Q. Yes, we have seen some of these principles come up before, and I think we've explored them a little more with you than we did before, but I think that we're all aware of the regulatory regime in which you are operating.

ROIL, Q.C.:

Q. Okay. So now I'll hand over to Ms. Farrell, who will talk about contractor management and quality management aspects of Part 1 of the safety plan.

MS. FARRELL:

A. So just to anchor you back, we're still in

Page 111

Part 1 and we're just sort of working our way.

ROIL, Q.C.:

Q. I was going to say, if we go back to the very beginning, we had six or seven parts that we're going to deal with. So we're still on Part 1.

MS. FARRELL:

A. We're still on Part 1.

ROIL, Q.C.:

Q. The safety plan.

MS. FARRELL:

A. All of the parts won't be this slow.

ROIL, Q.C.:

Q. I understand.

MS. FARRELL:

A. So I'm going to talk about, as Mr. Vokey said, quality management and contractor management, and at Suncor, safety management is embedded into those processes, and so I felt the need to put the two together because there is kind of a natural start and finish to how you select a contractor, and then how you manage their performance.

ROIL, Q.C.:

Q. Okay.

Page 112

MS. FARRELL:

A. So I'll just go to the next slide which talks about our contractor selection process, and I think Mr. Stacey said earlier that contractors who work on behalf of Suncor have that joint responsibility. They're to ensure a safe and healthy workplace for their employees, and they also have to ensure that their activities are completed in a safe and environmentally responsible manner. Suncor has a robust selection process for contractors, and we can scale it based on the risk and criticality of a contract. So at the commencement of the selection process, we will always establish a cross-functional team. That team will complete a thorough review of the scope of work to ensure that our requirements are very clearly articulated. The core members of the team are typically a technical representative, so somebody that's very close to the actual piece of the business that's being contracted. There will always be environment, health, and safety and quality assurance representatives on the team. Both of those would come from within my team, actually, and there will be a

Page 113

commercial person as well. Depending on the nature of the contract, other departments may be involved as well, so we may need to involve risk management people, legal folks. It just depends on the nature of the service being contracted. The key steps in the contracting process are outlined on the bottom of the slide, and I will talk to them to a little bit more detail in the next slide. Essentially it starts with a contracting strategy, soliciting expression of interest and a pre-qualification process. I'll give you an example from a pre-qualification perspective. We have certain health and safety requirements that have to be met. So coming back to your question earlier about the mom and pop shop, they have to meet our safety requirements, or else they will not be qualified to bid. It's just that simple. Issuing a request for proposal, doing a bid evaluation, undertaking bid clarification if it's required, the actual contract award recommendation, and execution. So I'll just walk through those in a little bit more detail.

ROIL, Q.C.:

Page 114

Q. Before you move on --

MS. FARRELL:

A. Sure.

ROIL, Q.C.:

Q. Then when Cougar was selected as the service provider for helicopter service, would this kind of process have been involved?

MS. FARRELL:

A. This is the exact process that would have been involved and we would have used the services of an aviation expert as a technical representative in that evaluation.

ROIL, Q.C.:

Q. Did Petro-Canada have within its own skillsets aviation experts at the time that the contract was first let?

MS. FARRELL:

A. At the time there was an individual who was used exclusively for that type of service. He was a contractor, but we actually had an aviation department within Petro-Canada at that time as well.

ROIL, Q.C.:

Q. Okay.

MS. FARRELL:

Page 115

A. Yes. So I talked about the contract strategy as being a key document that starts this process, and that's really where you think about the risks associated with the work, and you assign your selection criteria and your evaluation winnings for the bid process. The bid document communicates our expectations to all the bidders. Simply put, the bidders are required to meet or exceed the intent of all Suncor policies and procedures. So if we bid a piece of work and a contractor comes in with a safety management system that's even more robust than ours, or if they have policies that are more robust than ours, that's fine, but at a minimum, they have to meet ours. So during the bid review process, that cross-functional team that we establish will look at the effectiveness of the bidder's environment health and safety programs, will look at the effectiveness of their quality assurance programs, and if there's any gaps that are noted in the bidder's programs that don't prohibit them from being awarded the work, and if they are selected to do the piece of work, we would then ensure that a mitigation plan is

Page 116

built into the contract terms and conditions to cover any areas where we feel that they need to do something more. As part of the contract award, the contract is prepared. It obviously outlines our expectations of contractors, and we would typically do a kick-off meeting, especially with the start of a significant contract, and that's where we would get the contractor and Suncor representatives in the room and we would talk about our expectations for the duration of that contract, and ensure that there's absolutely clear understanding of their reporting requirements to us, as well as our expectations in terms of audit of their business. So in terms of performance management, ongoing throughout the term of the contract we would typically have performance measurements against contractor requirements. It could take a couple of forums. It could be meetings face to face to review performance during a quarter or half a year, or it could be actual written reports that they have to supply to us based on their performance.

ROIL, Q.C.:

Page 117

Q. So if we were to take Exhibit 140, and I won't spend a lot of time on it, but Exhibit 140 is the contract that you have with Cougar Helicopters.

MS. FARRELL:

A. Okay.

ROIL, Q.C.:

Q. Can you explain to us a little bit because I don't see any other opportunity in the slide presentation for us to sort of talk about how that contract was let, how Cougar was selected. We know evidentially that Cougar was already supplying to HMDC when the Terra Nova Project came on stream. So, you know, it would seem to an observer that the obvious place to go is to the existing helicopter provider. Was that a foregone conclusion in this case?

MS. FARRELL:

A. No, it was a competitively bid contract. So we went through the exact process that I described here, using as I said, an aviation consultant for the technical evaluation of Cougar and their expertise. We ended up with a bid recommendation which we went forward to

Page 118

the C-NLOPB to ensure that they understood what we were recommending and had no issues or concerns, and then the contract was awarded to Cougar Helicopters.

ROIL, Q.C.:

Q. So if we look through the various parts of that contract, we would expect to find the requirements in terms of providing service, things like the backup helicopter, the first response helicopter?

MS. FARRELL:

A. First response, yes.

ROIL, Q.C.:

Q. That would be in the contract?

MS. FARRELL:

A. Yes.

ROIL, Q.C.:

Q. Your right to audit or to inspect?

MS. FARRELL:

A. Yes, and our expectations of them in terms of reporting. So each month when we look at our health and safety statistics for our east coast region, included in there would be all of the logistics, health and safety experience as well, and that would include Cougar

Page 119

Helicopters, it would include our standby vessels, our supply boats. All of that rolls up in our monthly environment health and safety reporting.

ROIL, Q.C.:

Q. Perhaps we could take that contract, Registrar, and bring it up for us. It's Exhibit 140. It is one of these documents that is significantly redacted. We've really only put in there those clauses that we might need reference to within our Inquiry, and many of the commercial clauses have been taken out because of the fact that you have competitors and Cougar has competitors. If I take, for example, the first response capability. That would be at page 24 of our pagination, and down on the right hand side, I think you can see there the first response capability. Do you see that?

MS. FARRELL:

A. Yes, it's under Section 2.4.

ROIL, Q.C.:

Q. Yes, and if you'd read 2.4.1 please?

MS. FARRELL:

A. "The carrier shall provide all personnel,

Page 120

equipment, permits and/or authorizations required to provide first response to charterer-specific incidents on a 24-hour-per-day basis. Wheels up response times shall be, at most, one hour." Did you want me to continue?

ROIL, Q.C.:

Q. I might say, Commissioner, that it is clear from that clause that this contract has been set up as a charter, as opposed to a contract that would not have that expression. I don't take anything in law from that. I allow lawyers to draft documents the way they see fit, but clearly the same sorts of things were covered in the HMDC contract are covered here.

MS. FARRELL:

A. The same sorts of things. Our wording is a little different, but yes, same things.

ROIL, Q.C.:

Q. Yes, because you've set it up as a charter, your structure of your document might be different, but it seems to me the ultimate outcome is the same. Something like that, would you have had an opportunity to negotiate your own response time? In other words, if

Page 121

you had wanted a half an hour or you only wanted a two hour or whatever, how did you come to one hour? Was that something they told you they could do or something that you said you must have?

MS. FARRELL:

A. I'm probably not best equipped to answer that, because this contract goes back quite a long time.

ROIL, Q.C.:

Q. Yes, understood.

MS. FARRELL:

A. But can we negotiate this? Yes, absolutely.

ROIL, Q.C.:

Q. Yeah, so if at anytime when you are renewing a contract, if you wanted to call for something different than that -

MS. FARRELL:

A. Then we can do it.

ROIL, Q.C.:

Q. - either two helicopters or a half an hour or whatever, that is part of your -- you're free to negotiate a contract?

MS. FARRELL:

A. We can certainly negotiate that, yes.

Page 122

ROIL, Q.C.:

Q. That's fine. I think we can continue now.

MS. FARRELL:

A. Okay. So I'm going to move into our audit program, and I think Mr. Vokey talked a little bit about this. Audits, from our perspective, are essential for continuous improvement in your safety performance, and these may be internally focused. In other words, my -- the audit team that is in my group may decide to look at specific Terra Nova procedures or policies or we may look at our suppliers, and so our audit program will always be a combination of those two things.

ROIL, Q.C.:

Q. So it's internally within your own organization auditing, but also auditing of the contractors?

MS. FARRELL:

A. Of our suppliers, correct.

ROIL, Q.C.:

Q. And that lies within the responsibility of your department, does it?

MS. FARRELL:

A. That's right.

Page 123

ROIL, Q.C.:

Q. Good, okay.

MS. FARRELL:

A. Yes. So there's a number of things that we will look at, and I guess this comes back to your question of Mr. Vokey earlier about, you know, do you audit everybody every year or do you have some sort of a program. Well, there's a number of factors that we look at as we pull together our audit program.

First of all, our own management system processes and tools. So if there's been some significant changes in our management system, that's a flag for us to say "oh, there's an area where we may want to focus."

If there's been recent changes in programs, processes or people. Changing out people can be just as important as changing out a procedure and so sometimes those things will flag an area where we want to focus.

Criticality, and again, that's a risk based assessment of the activity. The performance of the activity or the supplier. So for example, if we've had issues with a supplier during the course of their work with

Page 124

us, we may say there's an area that we want to focus more specifically.

If there's a significant event or something in the work plan for the year or the following year. So for example, if we know that we're going to have to make a decision about the -- to rebid a contract. The year before that, you may say this is a good time for us to go in and do an audit to assess performance and safety management systems and those types of things.

Regulatory requirements are probably the obvious, and then the other is the audit history and so again, you can't audit every contractor every year, so you have to look and say when is the appropriate time, and there may be key things that drive you towards key dates. So for example, if you know that a contractor is going to be implementing a safety management system in 2009, you might want to wait until 2010 to then assess where are they in their roll out.

So those are the types of considerations that go into the development of our audit schedule. We pull that together and it's

Page 125

actually approved by the senior leadership team. So we will consult with Mr. Vokey, Mr. Stacey and all of the other leaders in the organization to say "are there key areas where you believe that we need to focus?" and then we'd built that into our annual audit program.

In terms of supplier audits, there's really three areas that we're looking at: the requirements in the contract, the supplier's safety and quality management systems, and their compliance with regulatory requirements.

ROIL, Q.C.:

Q. Okay. I guess to bring it down to helicopter safety and helicopter performance, the contract that we've just referred to calls for the ability of Petro-Canada in the contract, now Suncor, to perform audits. Has Petro-Canada/Suncor, in recent months, years, performed any audits of Cougar Helicopters?

MS. FARRELL:

A. Our most recent is the joint audit that we did in 2009. Petro-Canada or Suncor had identified that in late 2008 as part of our 2009 program. Following the March 12th crash, we said this is going to be an onerous year

Page 126

for Cougar, so rather than all the operators lining up to do one, we said "we already had one planned. Can we all agreed to participate in this jointly and minimize the impact on Cougar?" The timing of it was planned for late 2009 because they were implementing a safety management system, and we wanted to assess where they were with that. So that would be the most recent example, and I'll actually talk about our Suncor aviation audit program in a couple of slides.

ROIL, Q.C.:

Q. Okay. The fact that Petro-Canada, in the past, Suncor now, is a co-venturer with other companies that are in the other projects that are out there right now, would that have any impact on your desire or interest in performing audits, particularly with respect to shared assets?

MS. FARRELL:

A. There's no question that we look to a company like ExxonMobil that has a world wide aviation program and expertise. We would look to them as part of our due diligence and saying if Exxon's been doing these things, maybe we

Page 127

don't need to focus there as much as we might need to focus, for example, when we were bringing back the drilling rig. There's an area that we need to focus in 2008 to be ready for the rig. We'll move Cougar to 2009. So relying on our co-venture partners and their expertise in the aviation industry.

ROIL, Q.C.:

Q. Would you become aware formally or informally of the -- in other words, if something happened in an HMDC audit that a concern was raised, would that find its way to Suncor?

MS. FARRELL:

A. At a variety of levels. The most -- the closest place to it is the individuals that are managing that contract every day. So within our supply chain team, the logistics individuals that work in our organization meet with the logistics individuals representing the other operators and Cougar on a regular basis, and I will say that helicopter operations is one of the more closely managed contracts in our business, just by virtue of the way that we operate, and so that group is a very close group that shares information.

Page 128

ROIL, Q.C.:

Q. So you not only share the contractor, you share flights and everything?

MS. FARRELL:

A. Yeah. So sharing information at that level is absolutely critical to our ongoing relationships, and let's be honest, we're a partner in all of the other assets. Husky and Exxon are partners in the Terra Nova development. So if there's something that's important, we need to share these things with people because we are using common contractors.

So I just want to move to audit close out and then I'll talk a little bit more about the Suncor aviation program on a go-forward basis. We've talked about our relationship with the regulatory bodies and their audits of our operation. We've also talked about the fact that Suncor has an internal and supplier audit program. For those to be effective, you've got to have a robust process to track and monitor all of those things that you're finding as you're doing your audits, and to ensure appropriate close out.

Page 129

And again, coming back to that Petro-Canada database, we use that database to track all audit actions, and so what happens is an action is assigned to an individual with a target date to close it out. The individual who's then been assigned that action has the responsibility to develop the action plan, to update the database as actions are being taken and completed, to provide status updates, particularly if, for example, the target date was set and the action isn't complete, now we need to extend the target date. They're required to do in and actually document why the target date is being extended, and for what the new target date is, and then they are required to recommend when we think that an action should be closed out.

Progress in closing actions is monitored by my team at a quarterly loss management leadership team meeting that we have here in our region. So we are always looking at our status with respect to close out of action items. The only note that I'll make is if the actions are a result of a regulatory audit, obviously we don't get to decide when we think

Page 130

we can close it. We have to wait for the appropriate regulator to tell us when they deem the action to be complete, so that we can close it. So this is an area of significant focus for us.

ROIL, Q.C.:

Q. Can you tell us whether there were, prior to March 12th or subsequently for that matter, had there ever been concerns with respect to the operation of the helicopter portion of your business that have not been reasonably and promptly addressed by Cougar Helicopters and others?

MS. FARRELL:

A. I'm not aware of any circumstance where Cougar hasn't. If we identify something, Cougar has been very responsive.

ROIL, Q.C.:

Q. Okay.

MS. FARRELL:

A. So I mentioned the fact that with the merger of Petro-Canada and Suncor, we now have a Suncor aviation team, and that team will be providing support to all of our international and offshore business units, so not just the

Page 131

east coast, but we obviously have flying operations in places like Norway, in the UK, in the Netherlands, and so they will be providing this oversight across all of our international business unit.

ROIL, Q.C.:

Q. Do I take it that this is a growth in the aviation expertise in terms of the Terra Nova project?

MS. FARRELL:

A. It's certainly -- it's been quite beneficial to us. We had identified that we wanted to contract for aviation expertise, and then along came the merger. So this fell quite happily into our lap as a great solution.

So on a go-forward basis, I talked about the fact that we've relied on our joint venture partners in the past to do some due diligence for us. On a go-forward basis, Suncor's aviation department will provide aviation oversight and operation guidance for all of our charter and contract, fixed and rotor wing operations, and we do have some rotor wing operations in western Canada, in addition to what we would have in our

Page 132

international basin as well.

ROIL, Q.C.:

Q. So fixed and rotor wing refer to, to those not familiar?

MS. FARRELL:

A. Oh, sorry. Rotor wing, helicopter and fixed wing, obviously a regular aircraft.

ROIL, Q.C.:

Q. Aircraft, yes.

MS. FARRELL:

A. Suncor's aviation team consists of pilots and technical engineers. We've got about an average of 20 years experience in a combination of fixed and rotor wing. They've got -- actually we have, as I said, pilots. So they've got flying experience. They've got technical experience, structural, regulatory, and so we've -- the bullet points that you see on this slide really represent what that aviation group will be providing to us on a go-forward basis and it includes monitoring new and emerging national and international issues in the helicopter industry, tracking any alert service bulletins, airworthiness directives, doing the ongoing monitoring of

Page 133

the civil aviation defect occurrence reports or the CADOR reports that were mentioned, I think by Transport Canada, monitoring the safety management system, maintenance control and quality assurance programs of all of our helicopter operations, including Cougar, carrying out an annual aviation audit, interfacing on our behalf with Transport Canada and obviously providing us with general aviation expertise.

ROIL, Q.C.:

Q. Again, the support includes annual aviation audits. Do I take it that while sharing is going on, that some of the synergies of sharing information will be used, rather than each operator performing its own independent audit?

MS. FARRELL:

A. Absolutely. I mean, I think it's incredibly burdensome if each of the operators decides that they're going to conduct their own independent technical and management system audit. We're audited a lot. We understand the rigour that goes into participating in an audit. So it makes sense for us to share, and

Page 134

I think that's something we have to continue to do.

So we're now reaching the conclusion of part one and Mr. Stacey will review event management and our organizational structure.

MR. STACEY:

A. Thanks, Ms. Farrell. As Ms. Farrell said, I'll describe for you now how we manage events. Could I have the next slide, please?

ROIL, Q.C.:

Q. And events now, for the purposes of your discussion, are defined as what?

MR. STACEY:

A. Events are near misses and accidents or incidents.

ROIL, Q.C.:

Q. Okay.

MR. STACEY:

A. So Suncor's event management process provides a means for staff and contractors again to report, record, notify, investigate and analyze the factors that influence an incident. Processes are also in place to support the action plans, the recommendations and all of the factors that are designed to

Page 135

prevent reoccurrence. The event management process also addresses expectations of our contractors that work for Suncor. Our goals are to ensure that all events are reported, investigated and analyzed as required to meet our corporate and regulatory requirements, to improve safety and reduce risk by timely implementation of those corrective actions, and to prevent future events from happening, and also to report to our management and to our partners. Next slide.

Our event management system provides a basis for continuous improvement. For incidents of a serious nature, a formal investigation tool like TapRoot would be used to identify a root cause and other causal factors.

ROIL, Q.C.:

Q. TapRoot, we, I think, ran across that in a -

MR. STACEY:

A. TapRoot is a brand name for an investigation methodology that focuses on identifying causal factors and then ultimately a root cause for the incident.

ROIL, Q.C.:

Page 136

Q. Okay. So it's not proprietary to any of the oil operators? It's a program that -

MR. STACEY:

A. It's a commercially available package that has software that goes with it and training where investigators would be trained in those specific techniques to identify the factors, the time line that occurred or that led up to an incident occurring and then from there, to pick out the causal factors and the root cause.

ROIL, Q.C.:

Q. Okay. Does that have any relationship to the more generic lessons learned process that we have heard about?

MR. STACEY:

A. Lessons learned would be generated from a TapRoot investigation and then would be fed into our lessons learned database or built back into the procedures that again support the base of the triangle of TLM.

ROIL, Q.C.:

Q. Okay.

MR. STACEY:

A. So the actions that would be uncovered there

Page 137

would be executed to prevent reoccurrence of an incident, and outputs from the event management process enable our management to stewart to corporate objectives, and that is gauging the effectiveness of our systems and procedures, altering programs, perhaps shifting resources or sharing the learnings with others inside our business or with our partners. And keeping records allows us to analyze for trends and to share and review.

In addition to our Suncor internal reporting requirements, the C-NLOPB has very specific expectations of operators that are outlined in their incident investigation and reporting guidelines. So we do have time lines and specific things that the Board requires from us on an incident.

The east coast industry is improving the way in which lessons are shared amongst us. Shared ownership in the projects has certainly promoted that sharing and helps promote this dissemination of the information, and also to reduce the probability of a similar incident occurring on another installation. This Inquiry is actually a very good example of how

Page 138

far incident investigation can go and then how sharing would happen beyond that. The next slide, please.

ROIL, Q.C.:

Q. Perhaps again before you go on to organizational structure.

MR. STACEY:

A. Um-hm.

ROIL, Q.C.:

Q. Let's again bring the process of event management down to the helicopter level, and I'm trying to get a sense as to what information that you would have access to and would track that would arise out of helicopter transportation. For example, if a Suncor employee tripped on the stairs going into a helicopter and injured his or her knee, would that become an event that you would become aware of and how, and what would happen with that?

MR. STACEY:

A. If it was something related to our person, our people, our workers, yes, it would be.

ROIL, Q.C.:

Q. So the reporting would go from Cougar to you?

Page 139

MR. STACEY:

A. It would be in -- I think it would be in both systems in that instance. We would certainly track it because it's our workforce. Cougar would be involved in the investigation and tracking to outcome because it occurred on their -- in their facility.

ROIL, Q.C.:

Q. Get into the expression "near miss", and again the difficulty of using that, that expression, without care in an aviation environment. In my jargon, a "near miss", two aircraft fixed wing is that they come too close to one another.

MR. STACEY:

A. Um-hm.

ROIL, Q.C.:

Q. But I understand that the expression "near miss" can also, perhaps in helicopters and maybe I've misunderstood this, can refer to a flight out that doesn't make it because of weather, for example, or mechanical reasons and comes back. Would that -- if that were a Suncor flight, the flight is a scheduled flight. It goes out, it's not able to land

Page 140

and it comes back, would that be something that would be an event that you would manage?

MR. STACEY:

A. I don't think that would be defined as a near miss.

MS. FARRELL:

A. That's not a near miss in our world. It doesn't prevent an employee though from raising a hazard or one of these cards that Mr. Stacey talked about, to say "this happened, investigate and tell us why."

MR. STACEY:

A. Right.

MS. FARRELL:

A. So it may still end up in our event reporting system because an employee references it, but a near miss for us would not be a missed approach. That's an aviation term, not something that's specific to our world.

ROIL, Q.C.:

Q. Yeah. Your expression "near miss" has nothing to do with that at all?

MR. VOKEY:

A. That's correct.

MR. STACEY:

Page 141

A. That's correct.
ROIL, Q.C.:
Q. Okay, and then obviously an incident like March the 12th, would that become an event -- this is at the other end of the spectrum from the hurt knee to the flight that doesn't make it. Now we have a flight that ditches. Does that become an event that is recorded within your system?
MR. STACEY:
A. Notwithstanding the tragedy of March the 12th, the helicopter that, in question, was flying for Husky and for Hibernia at the time, it was not a Suncor flight. So in our system, it's not an event. However, as -- because the interest from our workforce was so high, things like -- we set up a separate ProAct event for it, and in there is all the information relating to Helicopter Operations Task Force. Any of the publicly available or internal company available information has been housed in ProAct to help our workforce understand and for us to communicate with them.
MS. FARRELL:

Page 142

A. We've actually taken the lessons learned from that event through our international business unit as well, because clearly we have helicopter operations there, and some of the issues that we were dealing with, even in the early days following the crash, were of great interest to other parts of our business as well.
MR. STACEY:
A. I think it exemplifies the flexibility of the system and the recognition by leadership that if it is something of importance to the workforce and to us and we can learn from it, we'll create the event, even though it wasn't specifically related to our activity.
ROIL, Q.C.:
Q. Even though by the rules, it doesn't fall in, there is an event that was so significant that you made it fall in.
MR. STACEY:
A. That's right.
ROIL, Q.C.:
Q. Okay.
MR. STACEY:
A. Okay. Shift gears here now, and talk about

Page 143

our organizational structure. It is the last of the components of part one of the safety plan.
ROIL, Q.C.:
Q. I think we'll probably get there by 12:30 and then we'll take our luncheon break.
MR. STACEY:
A. Okay.
ROIL, Q.C.:
Q. That's very good timing. Thank you.
MR. STACEY:
A. The Suncor organization is established and led by our east coast vice-president Allan Brown and a team of senior leaders based here in St. John's, and they set the environment, health and safety performance expectations for our operations, but they're based on the corporate objectives, and we also review our progress to ensure we achieve those goals. They also ensure compliance with the applicable health, safety and environmental, and asset integrity regulations codes and standards.
Performance expectations are cascaded throughout the organization to strive for continuous improvements in all areas of our

Page 144

business. Compliance with safety, health and environment regulations and installation codes and standards are delivered through work plans that we have for each of the leaders and the individuals in our organization. The safety plan accountabilities that we spoke of before for delivery of performance include, for instance, the Terra Nova asset manager, that's Mr. Vokey's role. He's accountable for providing leadership to ensure the safe operation of installations, to protect the health of employees and contractors and to protect the environment.
ROIL, Q.C.:
Q. That expression, asset manager, so he's not simply responsible to manage the physical assets? It's the human assets and everything?
MR. STACEY:
A. That's correct.
ROIL, Q.C.:
Q. Okay, and it's not just -
MR. STACEY:
A. Asset is a broad term in our business.
ROIL, Q.C.:
Q. Yeah. Asset doesn't have the common

Page 145

understanding that some of us would have, in terms of assets. It sounds like things, but it includes people?

MR. STACEY:

A. It does, yes, everything that we have.

ROIL, Q.C.:

Q. And the operation. What about -- it says installation, so Mr. Vokey is responsible for the FPSO and the MODUs that are out there?

MR. STACEY:

A. That's correct, and if a MODU comes into the field, then -- and that's my responsibility as a line manager reporting to Mr. Vokey, that I'm accountable for the safe and environmentally responsible operations of the drilling rig.

ROIL, Q.C.:

Q. Okay. So you are at the next level, called a line manager?

MR. STACEY:

A. That's correct. And I'll have -- there's an organization chart coming up -

ROIL, Q.C.:

Q. Yes, we'll have a look at that.

MR. STACEY:

Page 146

A. - to help tie this together a little bit. The environment, health and safety manager, that's Ms. Farrell's role, is the steward of our total loss management function, ensuring alignment with total loss management standards, as we've described, the pyramid right from the top to the bottom, and providing due diligence in meeting our environment, health and safety obligations through the monitoring, auditing, emergency response, event management and reporting functions that we've discussed. Ms. Farrell has a team of approximately 20 professionals and always at least one offshore, but in many cases, more than that.

Support teams such as supply chain, finance and information services develop and implement procedures and strategies and plans to ensure facility integrity and ensure regulatory compliance.

Tracking performance over time and setting new goals helps us to deliver continuous improvement in all areas of our business.

East coast health, safety and environment

Page 147

performance is independently monitored on a monthly basis in two manners. One, by a team of senior leaders within the region, the east coast region, called the loss management leadership team, and Ms. Farrell referred to that earlier, and our east coast vice-president chairs that meeting. Then, at a corporate level, by a team of senior leaders for the business unit and overall for the corporation called the loss management council, and the vice-president of international and offshore chairs that loss management council. The next slide, please.

So here's the -- the chart on this slide represents our organization as it was in place in early 2009. The chart provides you with a view of our reporting relationships. You can see the asset manager reporting to the east coast vice-president. Also draw your attention to the dotted and solid lines on the chart. The solid lines indicate a direct reporting relationship to the east coast vice-president, such as Mr. Vokey's role, the asset manager for Terra Nova, or another instance would be the asset manager for our joint

Page 148

venture's operations. So there's a direct reporting relationship.

ROIL, Q.C.:

Q. Okay. So Mr. Vokey directly reports to Mr. Brown?

MR. STACEY:

A. That's correct.

ROIL, Q.C.:

Q. Yes, okay.

MR. STACEY:

A. The dotted lines reflect the fact that these positions take day-to-day direction, work direction, from the local team, but they report to a functional manager located in another area of the business, and that could be physically or both physically and functionally. Examples of that relationship include the environment, health and safety manager and the supply chain manager. Mr. Commissioner, Ms. Farrell will take a minute just, I think, to explain a little bit more about how her -- how that reporting relationship works for her.

MS. FARRELL:

A. I know that you had a number of questions of

Page 149

the joint panel about the reporting relationship for sort of the safety function within the organization, so as I mentioned in my introduction this morning, I actually report to a manager or a director of environment, health and safety and so while I support the east coast and take my day-to-day direction, as you can see in the chart, from our east coast vice-president, Allan Brown, my reporting line is straight to an environment health and safety function which is managed corporately and so even reporting of our health and safety performance for this region, that flows through the environment health and safety group to our EH&S subcommittee of the board of directors. So we work in very close support of the region, but the reporting line is independent from the region itself.

ROIL, Q.C.:

Q. So if you -

COMMISSIONER:

Q. When you speak of corporate, you're speaking of the board of directors?

MS. FARRELL:

A. And our corporate environment, health and

Page 150

safety team, yes.

ROIL, Q.C.:

Q. Yes, so if you had a concern about -- let's make it a safety concern about something to do with helicopter transportation in offshore Newfoundland and Labrador, to whom would you bring that concern and what are your abilities to communicate that concern?

MS. FARRELL:

A. Immediately I would go to the regional team, because they're the one accountable for safety performance in the region. If for some reason I didn't think that they were paying attention or listening or responding, then I would move that up my reporting line to my boss who is the director of environment, health and safety for Suncor.

ROIL, Q.C.:

Q. So again, making a hypothetical, and don't want anyone to think that this can happen, but if you reported a condition and it went up to Mr. Brown and he decided that he didn't think it was important, if you thought it was important, where do you go?

MS. FARRELL:

Page 151

A. I go to my director of environment, health and safety.

ROIL, Q.C.:

Q. Okay, I think -- again, do you have any further comments on the slide, because I think we're getting close to a lunch break. I did have another -

MR. STACEY:

A. Nothing further on the slide. Just really that concludes part one of the safety plan.

ROIL, Q.C.:

Q. Right.

MR. STACEY:

A. I think we could do the next slide, which -

ROIL, Q.C.:

Q. We won't, because I have a couple of questions.

MR. STACEY:

A. Okay.

ROIL, Q.C.:

Q. I'm in charge here now.

MR. STACEY:

A. Absolutely.

ROIL, Q.C.:

Q. Nice feeling to have a little power. I guess

Page 152

there was a discussion yesterday -- again I don't like comparing and contrasting, but sometimes it's necessary just to understand. We had another organization that said it had a very flat structure, a flat corporate structure that everybody reported to the CEO. This sounds to me like something more complex or more hierarchical. Do any of you wish to comment on whether that offers any benefits or detriments or whether it is -- there are any challenges or advantages to the structure that you have?

MR. VOKEY:

A. Maybe I'll start. We have an operations manager. It's on that last slide there. That operations manager is responsible for all aspects of the Terra Nova operations, both onshore and offshore, as it relates to the operations. That individual reports directly to me, as does, you know, the turnaround manager on the right side. You can see Mr. Stacey's position. But in terms of, you know, things that are happening offshore, we've talked a lot about our ProAct system. All leaders every morning get a full list of any

Page 153

hazards or concerns that have been raised offshore. So I do get immediate feedback. On a weekly basis, I meet with my leadership team, every Monday morning, and we discuss any types of operational issues. On a monthly basis, we have what we call a loss management leadership team, which has probably 15 to 20 leaders in the company, and we take three hours plus and that's totally dedicated to any safety, environmental type of issues, and that's all the meeting is about.

So in terms of engagement, in terms of knowing what's going on, I'm there, I think as much as would be in Hibernia's structure or any other structure.

ROIL, Q.C.:

Q. Anybody else want to offer a comment?

MS. FARRELL:

A. We have a leadership visibility requirement and so all of our leaders are expected to spend time offshore. The operations manager that you see here clearly has the biggest requirement and so he generally, I think, spends, you know, eight visits a year. I know Mr. Vokey visits offshore. We all are

Page 154

required to visit offshore. But I guess in terms of frequency of visitation to the platform, that would rest more with the operations manager in our world than it would with the Terra Nova asset manager.

ROIL, Q.C.:

Q. Something like the OIM is not shown here, the -- you do have an offshore installation manager?

MR. VOKEY:

A. That's correct. There's two organizations below the operations manager. One is an onshore operations organization that supports offshore, and then there's the full offshore organization that is led by the offshore installation manager. So this just shows the onshore leadership, but if you were to drill down into the operations manager role, there's a very large operations shown that's offshore, led by the OIM.

ROIL, Q.C.:

Q. So the OIM would report to the operations manager?

MR. VOKEY:

A. Directly to the operations manager.

Page 155

ROIL, Q.C.:

Q. Who then reports to you?

MR. VOKEY:

A. That's correct.

ROIL, Q.C.:

Q. Okay. I think that's all that I have for right now on this slide. Thank you, panellists, and I think this is perhaps a good place for us to take our luncheon break.

COMMISSIONER:

Q. Break here for lunch.

(LUNCH BREAK)

COMMISSIONER:

Q. Okay, Mr. Roil.

ROIL, Q.C.:

Q. Good afternoon, folks. Mr. Stacey, I understand there might be something that you wanted to clarify arising from your evidence this morning that was not clear?

MR. STACEY:

A. Yes. Just a statement that I made around ProAct and the HOTF report.

ROIL, Q.C.:

Q. Yes. I think you indicated that the HOTF report was filed in ProAct, I think. That was

Page 156

the impression I had at least.

MR. STACEY:

A. That's what I did say, and that's incorrect. The HOTF report, in its entirety, sits in a paper version in the OIM's office on the FPSO for the workforce and everyone on the installation to look at. What is in ProAct is all of the follow up material, the actions and any other helicopter incidents. Those are the kinds of things that are contained in ProAct.

ROIL, Q.C.:

Q. Okay. So like the recommendations, would they -

MR. STACEY:

A. The recommendations, that's correct.

ROIL, Q.C.:

Q. Okay. Yeah, we had some evidence around the HOTF, so we're familiar with its formatting.

MR. STACEY:

A. Okay.

ROIL, Q.C.:

Q. Okay. I think we were ready then to start on slide number 51, which takes us back to one of the watershed slides, I think, where we begin to see where we've come from, and I think

Page 157

we've only covered part one.
MR. STACEY:
A. That's correct. We covered part one. This slide deals with part two and part three of the safety plan. and it covers facilities, equipment, operations and maintenance processes. During Mr. Pritchard's testimony in the joint panel presentation, he stressed the importance of equipment, procedures or processes and people, and part two of the safety plan describes the facilities, equipment -- our facilities and equipment elements of our plan and includes things such as vessel design, station keeping systems, subsea layout, power generation and the basis of safe operations, including layout, control systems, safety and environmentally critical elements.

And part three of the safety plan describes the operations and maintenance elements, and that includes our operations manuals, production monitoring and control systems, simultaneous operations activities, control of work, maintenance and engineering integrity, management of change, safety

Page 158

inspections, personal protective equipment and the transportation of dangerous goods.

And we weren't going to cover these sections in detail, as the majority of the content in there is not directly relevant to the Inquiry. You do have the material though.
ROIL, Q.C.:
Q. Yeah. So that personal protective equipment, if that included the transportation suit, we'll deal with that specifically anyway, will we?
MR. STACEY:
A. We will deal with the suits later in the presentation. Ms. Farrell takes us through those in detail.
ROIL, Q.C.:
Q. I take it that generally most of the things spoken of there do not touch very much, if at all, on helicopter transportation?
MR. STACEY:
A. That's correct.
ROIL, Q.C.:
Q. Yeah, okay, that's fine.
MR. STACEY:
A. We'll now move on to part four of the safety

Page 159

plan. Mr. Vokey?
ROIL, Q.C.:
Q. Okay. So we are going to deal in more detail with four, five and six?
MR. STACEY:
A. Yes.
MR. VOKEY:
A. That's correct.
ROIL, Q.C.:
Q. Thank you.
MR. VOKEY:
A. Part four of the safety plan summarizes the work undertaken by Terra Nova to identify hazards and to encourage that the risk associated with those hazards are managed. The risk analysis process for Terra Nova began early in the development phase and it was to determine how a field would actually be developed. The objective of our risk assessment process that was used was to ensure that a full range of potential scenarios that could create a hazard were identified, that an analysis be completed which includes the assessment of consequence and frequency, overall assessment of risk to people and

Page 160

safety functions is understood, and preventative, controlling and mitigating measures are in place to manage risk.

Risk assessment and management is fundamental to our business. It is continuous and it is embedded in our business processes. In this section, I'll review some of the elements of the risk assessment from the Terra Nova safety plan.

Ms. Turner provided an overview of the general risk assessment concepts in her testimony back in November, and we spoke about this from the oil and gas industry perspective at last week's joint panel. The valuation of risk involves the assessment of the potential consequences of the event, as well as the likelihood of the occurrence. Consequences can be assessed in terms of potential for harm to people, the environment and property. Ms. Turner also spoke about the difference between risk and safety. If you think about an average day and the activities that you perform, there is no activity that is completely free from risk. We each make decisions to perform certain activities

Page 161

because we consider the risk associated with those activities to be acceptable. Safety is therefore somewhat of a relative attribute.

Our individual evaluation about whether we think the risk is acceptable and the activity is safe can change from time to time and as the context changes. For example, depending on the weather or sea state, certain crane operations offshore may or may not be undertaken. If the weather is it's a calm day, there's no vessel motion, and we're performing what we would refer to potentially as a critical lift, which means you either have restricted line of sight or it's a heavy piece of equipment going in between, you know, a tight tolerance, that work you would consider safe on a nice day where the vessel is not moving. If, however, sea states were high, winds were blowing at 30 or 40 knots, because of the vessel motion, you would say it's not safe to perform that activity. So while the crane operation itself is a safe operation on a nice day, when the weather deteriorates, it may turn something that was once safe into an unacceptable risk, and this

Page 162

does happen offshore from time to time. Not only with crane operations, but with a number of activities.

ROIL, Q.C.:

Q. I think we've already discussed, in general terms, with other people, including yourself, that the risk of helicopter transportation can change with the weather and the ability of the helicopter to land, for example?

MR. VOKEY:

A. That's correct, and you know, and I think as was said on another panel, and support services available.

ROIL, Q.C.:

Q. Yeah.

MR. VOKEY:

A. There are a number of risk management tools in place that help us assess risk within our business. This slide presents just some of the tools that we would typically use in the concept selection of the design phase or if we are introducing a significant system change or operating condition. Structured process hazard analysis tools would include things like a hazard and operability analysis or a

Page 163

HAZOP, a what-if analysis, or a failure mode effects analysis that we refer to as an FMEA.

Just as an example, if you were using a what-if analysis, that is a structured analysis where you take a piece of equipment and you say "what if it doesn't operate the way it's supposed to?" in terms of, you know, you've got too much temperature, not enough temperature of fluid, too much pressure, not enough pressure. So you take a look at all the potential operating parameters for a piece of equipment and you say "okay, if it operates outside those parameters, what is the effect on the equipment?" and more important than what is the effect, does it pose a safety hazard, and if there is a hazard, then you need to quantify the hazard and determine if risk need to be mitigated. So these are very structured tools. They're technical tools, but it's a process where it can drive people to focus on the safety aspects of the work in question.

ROIL, Q.C.:

Q. Does Suncor have risk management specialists within the organization?

Page 164

MR. VOKEY:

A. We have, through one of our prime contractors, a dedicated skill set in leading these activities. You don't use these tools every day.

ROIL, Q.C.:

Q. No.

MR. VOKEY:

A. It's probably once a week, you know, twice a month, probably sometimes three and four times a month, depending on the activities. But the people that lead these types of activities do need the technical skills to actually lead them.

ROIL, Q.C.:

Q. Okay. One thing I don't see in your slide presentation is the little matrix box that we saw Ms. Turner from Aerosafe use and we saw one of the other operators use, and sometimes there's four levels of consequence and there's four levels of outcome or of -

MR. VOKEY:

A. Yeah.

ROIL, Q.C.:

Q. Anyway, there's a two-tiered -- does Suncor

Page 165

have a similar tool or do you work in a different way without a tool like that?

MR. VOKEY:

A. No, we have the exact same tool. In the Petro-Canada world, it was a seven by seven matrix. So I've seen them as low as four by four, but ours was a seven by seven matrix and it is a corporate tool and it drives all areas of the company to use that tool to the same criteria. Yes, we do use a risk matrix and if it's in the red section, it's an unacceptable risk and you need to manage it outside of that or the work don't happen.

ROIL, Q.C.:

Q. Okay, and I think we heard other witnesses with other organizations say that certain financial or operational risks might be taken in the black or in the red, depending on the colour of your matrix chart, but that safety risks would never be allowed to get into that area. Does the same rule apply with Suncor?

MR. VOKEY:

A. That's correct. If the risk is financial, it means it's business and it's either directly financial or reputational, then there are

Page 166

steps to take it throughout the organization to say, you know, as a company, would you be willing to accept a business risk. A business risk acceptance is different from a safety risk acceptance. If the matrix says it's in the red, there's no alternative, but to either not do it or to manage it outside.

There's also additional tools that our offshore personnel would be familiar with as a regular part of their responsibilities, and these would include things like: a job safety analysis, and that's where the people are actually performing the work, take a look at their risk that is potentially associated; simultaneous operations; safety audits and instructions; event management; and ongoing PHAs, and that takes into account all systems and design changes that we may or may not undertake.

ROIL, Q.C.:

Q. Okay, that expression is perhaps a little new to us here. Process hazards analysis?

MR. VOKEY:

A. Again, that's a structured tool that would be used to identify what hazards would be

Page 167

associated with performing work, and that's more of a process. The tools I indicated on a previous slide would include the what-if analysis. So process hazard analysis tools would be HAZOPs, what-ifs and FMEAs. They're all structured technical tools, depending on what the type of analysis you want to perform.

ROIL, Q.C.:

Q. So in a daily situation where things do change, like for example in helicopter operations where the weather does change or the ability of the -- maybe the lights are out on the landing pad because of an electrical issue involving the FPSO, that for some reason or other the helicopter landing lights can't go on on a particular day, does that trigger a formal risk assessment or is there an ongoing process of risk analysis that happens as a result of just simply making business decisions on a daily basis?

MR. VOKEY:

A. The tools that we're talking about here are typically for ongoing on board day-to-day activities. In the event that we didn't have helicopter landing lights, that work or that

Page 168

information would be communicated from the FPSO back through most typically directly to Cougar or through our logistics people to Cougar and then those decisions, as to whether or not they would land on it ultimately would land within Cougar's operations manual, as it relates to Transport Canada and what they're allowed to do, and ultimately would be the person in charge or the pilot. If there was nothing in the regulations that said they couldn't do it or as part of their certification, then it would be up to the pilot in charge to determine if the risk is acceptable.

ROIL, Q.C.:

Q. Right. Now in the example I took, there may very well be a Transport Canada rule that says thou shalt not.

MR. VOKEY:

A. That's right, and I don't know that. So that's why I'm saying, you know, if there's not a certification or a regulatory, then it would be Cougar's assessment and ultimately the pilot has the last say.

The processes that I've talked about in

Page 169

this section apply to Suncor's management of the activities and plans that have plans and controls. So contractors are responsible for risk management of their activities. There are key mechanisms to ensure the overall safe performance of our contracts and they would include the contractor regulatory compliance and monitoring and audit by the appropriate regulatory, and we talked a little bit about that this morning. Also it would include the contractor's safety management systems and their procedures, including their risk assessment processes and we also mentioned that earlier that if their safety management system doesn't come to the level, say, of Suncor's, that as a minimum, they would have to bring it to what the operator has, and also, it would include audits and inspections.

In the case of Cougar, we rely on Transport Canada regulation, certification and audits and inspections. We also rely on Cougar's safety management systems, their tools and practices. As was mentioned previously, we do have regular meetings with Cougar to discuss any operational or any other

Page 170

types of issues they may have, and we also rely on the technical and management system audits and inspections that we, as operator and/or our joint ventures partners, do on companies like Cougar. So the Cougar world is, from an operator's perspective, somewhat different than our other contracts that are physically working on the FPSO.

ROIL, Q.C.:

Q. Because they are physically off the FPSO most of the time and -

MR. VOKEY:

A. And they have a different certification process, in terms of they are regulated by a different body, the Transport Canada Aeronautical division, whereas we're regulated by the marine division and the Board and Lloyd's.

ROIL, Q.C.:

Q. There was a fact situation that Mr. Earle, counsel for CEP, brought up to the earlier operators that raised a fact situation. I don't think it was hypothetical. Where a helicopter was not able to be easily balanced for landing and so passengers were asked to

Page 171

move, and I believe the answer from the earlier operators was that it wasn't a flight that they were responsible for. Do either of you folks recall that that was a flight that you were responsible for or that was landing on your facility?

MR. VOKEY:

A. That was not a Terra Nova flight.

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. And that concludes, I guess, the high level risk assessment process that we do use for our day-to-day activities. If there's no questions, Ms. Farrell will now review, I guess, the last two sections of the safety plan.

MS. FARRELL:

A. I just want to say that these sections are getting shorter because a lot of this material has been covered either in the joint panel or in the previous HMDC presentation. So we felt that it was appropriate to sort of rely on the fact that you've probably already heard it at least once, maybe twice, and so we can

Page 172

condense the last sections down quite a bit.

ROIL, Q.C.:

Q. Yeah, but your own presentation is complete in itself.

MS. FARRELL:

A. That's right.

ROIL, Q.C.:

Q. You just will not spend as much time talking about the items.

MS. FARRELL:

A. That's right.

ROIL, Q.C.:

Q. Okay, that's fine.

MS. FARRELL:

A. So I move now to part five of the safety plan which describes our recruitment philosophy, employee and development strategy and operations training and competency requirements, and I know that much of this was covered during the joint panel, so I'm just going to give you sort of a very quick slice of what this looks like from a Terra Nova safety plan perspective.

So during our project phase, we did a detailed training needs analysis and it was

Page 173

really a combination of looking at emergency readiness training, regulatory requirements, environment health and safety training. We had to look at all of our simulators, the specific machinery that we have, so vendor specific training. So all of those things were reviewed to determine what is it that we need to provide to our workers as a part of their training and competency development.

Our training and competency for development for our employees is achieved through a variety of ways. It could be formal classroom training, the types of training you've heard about in terms of BST, those types of things. We actually do a lot of online training courses as well. So where we can take a course and condense it down into something that can be done online with quizzes at various points through the online module, we can do it that way. We've got orientation programs, such as our new worker induction program, and I'll talk a little bit about that when I talk about the Terra Nova safety handbook. So there's a variety of ways in which we do training.

Page 174

The fundamental offshore training requirements, and I've got it -- we've got the picture there of the CAPP standard practice for training and qualification of personnel. That's obviously where most of our training requirements come from, and we're audited by the C-NLOPB in terms of our compliance with those training requirements. But in addition to that, there are some specific training requirements for Terra Nova, things, because for example we're a ship, and so we do have some different expectations for our employees. So we wanted to just take you to sort of a slice of Terra Nova specific training.

ROIL, Q.C.:

Q. Okay. Before you go there -

MS. FARRELL:

A. Sure.

ROIL, Q.C.:

Q. - again, just to make sure we cover off items that have come up here. The CAPP, we heard a fair bit of evidence from CAPP about the standard practice for the training and qualifications of personnel, the little -- or they're not little, the booklet that you've

Page 175

reproduced the cover of here. Does CAPP -- I don't know if you know, either one of them, or do you know, perhaps Mr. Stacey does because he worked out in the west for a while -- does CAPP set standards for the training for the oil industry everywhere or is it just in Atlantic Canada that CAPP is relied upon as a tool for that kind of resource to be developed?

MR. STACEY:

A. My experience in western Canada is probably dated now. It was mid 90s when I left there. So I probably shouldn't comment on where CAPP is with their training out there.

MS. FARRELL:

A. I can provide you with perhaps a little bit of insight. Some of the work that we've done here on the east coast really leads the industry in Canada. So for example, the work that we've done on the fitness requirements for working offshore. I know in my career with Petro-Canada, I've had individuals that work within the company call me saying "you guys are way ahead of where we are. You guys have got this sorted out. You've figured out

Page 176

the requirements of different positions. Your standards are set and they're very clear." So I think there are some areas where the east coast really leads other parts of the Canadian operations, and it's very specific to the environment within which we operate and the needs associated with that. So we have had to do it, because it's our license to operate.

ROIL, Q.C.:

Q. Okay. So the reliance is not on company, it is industry wide standard training?

MS. FARRELL:

A. For the standard practice for -

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. - for offshore, yes, we rely very heavily on this, the CAPP standard practice, and the Board is involved in the development of the standard practice and the Board audits us, in terms of our compliance to that standard practice.

ROIL, Q.C.:

Q. Yes, okay, thank you.

MS. FARRELL:

Page 177

A. So as I said, just a very quick snapshot of what a training requirement would look like for an FPSO employee. As I said, we use an electronic system and that essentially means that as a new person is hired and they go into an offshore role, they would have a list of the specific training requirements for their role.

ROIL, Q.C.:

Q. So this image here is actually taken for a particular job?

MS. FARRELL:

A. You see it's called active learner, and that's the database that we use, and so what we did is said if we hired a new production technician what would be all of the training that would be in the database that this person has to complete, and you'll see down on the bottom, it says record one through 45 of 45. So what that's trying to tell you is that there are 45 distinct training requirements for a person in that role.

ROIL, Q.C.:

Q. Okay. So we don't see 45 on the page, but if you were to scroll it, there would be in fact

Page 178

45 training requirements for that job?

MS. FARRELL:

A. That's right, yeah, and so some training is completed once. So you'll see, I think, on the top of the page, regulatory awareness. It's the third one down from the top. That's completed once when a person enters the industry. Things like the HUEBA training or basic survival training that are also on this screen shot, those have recurrency requirements. So anybody that's on our fire team, they've got to go back and have retraining, and so on average, our offshore employees take between eight and ten days of a year in terms of just recertifying and meeting the certification requirements of their job, just for training days.

ROIL, Q.C.:

Q. And so some of the training is recurring, some of it is once in a lifetime. Some of it, presumably, could be updated from time to time.

MS. FARRELL:

A. And some years are worse than others. If you happen to do your BST recurrent and your fire

Page 179

team training in the same year, then you may take more than eight or ten days for training. So some years are worse than others, but on average between eight to ten days of training specific to the requirements, either just to be working on the FPSO or the specific requirements of their role. And so when the C-NLOPB comes to audit us, they will go into active learner and they will talk to our employees to find out "so have you got all of the things that you're supposed to have?" and if there's something missing, they'll note that as a gap that we have to then close.

ROIL, Q.C.:

Q. So if, for example, I pulled up helicopter landing officer, I would get a similar list for what the training requirements were for a helicopter landing officer?

MS. FARRELL:

A. That's correct.

ROIL, Q.C.:

Q. Okay. In an industry that has farm-out agreements, that seems to have those farm type expressions, I have to ask you, common curiosity tells me, what is pig launching?

Page 180

MS. FARRELL:

A. You know, I'll hand that over to Mr. Vokey because he can explain that better.

ROIL, Q.C.:

Q. I suspect it's not relevant to helicopters, but -

MS. FARRELL:

A. I'd prefer not to answer it.

ROIL, Q.C.:

Q. - give me ten words or less.

MR. VOKEY:

A. No, it's not, and don't ask me the history. Pig launching is actually a high risk activity. It's where you have a high pressured pipeline -- say, for example, if we were going to disconnect the FPSO and take it off location. Typically, there would be oil in the subsea lines and they would be pressured. So a pig launch, it allows you to isolate the pipe which can be, you know, upwards of 9 to 12 inches in diameter, and insert a mechanism, it can be foam or plastic or otherwise, and how it got the name pig, I don't know, and you can put that in between the two isolated pieces of pipe, reinstate the

Page 181

pipe as a single unit and you can circulate this around and circulate the oil out, you know, have water or something come behind it. So it gets rid of the hydrocarbons and any gas that may be in there and it allows you then to break the integrity again and to take the pig out and then your subsea flow line is full of water. So it's a piece of foam or otherwise that helps separate two different fluids, but it is a high risk activity because we deal with high pressures. So it would be a specialized -

ROIL, Q.C.:

Q. And no animals are injured in that process.

MR. VOKEY:

A. Like I said, don't ask me the history. I don't know it, but we refer to it as a pig.

ROIL, Q.C.:

Q. Thank you, Mr. Vokey.

MS. FARRELL:

A. Okay.

ROIL, Q.C.:

Q. The whimsical questions sometimes have to be asked, just to find out.

MS. FARRELL:

Page 182

A. I'm going to move off the slide quickly. So the next section is part six of the safety plan, so the last section of the safety plan. We have developed emergency and contingency plans to respond to and mitigate events that could cause harm obviously to people or the environment, and our contingency plans address foreseeable alert and emergency scenarios, again that have been identified through that process of doing the risk assessments.

So part six of the safety plan revolves around two main philosophies. One is about emergency preparedness, having the resources and two is about contingency planning. So making sure that you've thought through the possible range of scenarios and then having contingency plans to address those.

So in this section, you'll see that it covers logistical support, exercises and drills, alert and emergency response plans, ice and vessel traffic management and multi-operator support, which you've -- I think in the joint panel we talked about it as mutual aid. I think that's a term that we've used.

ROIL, Q.C.:

Page 183

Q. Yes, mutual aid agreement was referred to.

MS. FARRELL:

A. Right.

ROIL, Q.C.:

Q. Exactly.

MS. FARRELL:

A. So that's what's covered in part six of the contingency plan. There's two sections which I guess are relevant, particularly relevant to helicopter operations. One is around logistical support and the other is the alert and emergency response plan. So I'll just take a moment to talk about what's in those sections.

So in terms of logistical support, this section of the plan provides additional details on what's available to us to respond in the event of an emergency, and it includes requirements for communication systems. Again, we're a flagged vessel and a production facility, so we've got to make sure that we've got all of the appropriate communication systems to meet both requirements. Ship-to-shore communication, in terms of voice and data requirements. The search and rescue

Page 184

section of this plan is where you'll outline or see outlined the aeronautical and maritime search and rescue services that are provided to us, either by Department of National Defence or the Canadian Coast Guard.

ROIL, Q.C.:

Q. Okay. So the so-called JRCC, Joint Rescue Coordination Centre, that is outlined in this area?

MS. FARRELL:

A. The support that they provide to us would be outlined in that section of the safety plan.

ROIL, Q.C.:

Q. Okay. Would the first response from Cougar also be found in that area?

MS. FARRELL:

A. Yes, it would be. It's either there or it's in the helicopter operations manual.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. Again, one supplements the other, so I'm never completely sure if it's covered at a high level here and then in detail in the helicopter ops manual, but it's absolutely in

Page 185

the helicopter operations manual.

Medical support services are obviously very important to us, both on the FPSO or the drilling rig, as well as the onshore on-call requirements. So we always have a health advisor or a rig medic on the facilities and we've always got 24/7 access to medical support onshore as well.

Flight following and vessel watch. This is what, I guess, we've talked about, I think a number of times, in terms of Cougar's Blue Sky system. So that's that requirement.

ROIL, Q.C.:

Q. So Blue Sky both tracks the helicopters and the vessels?

MS. FARRELL:

A. And the boats, that's correct.

ROIL, Q.C.:

Q. Oh, okay.

MS. FARRELL:

A. Oil spill response obviously is a significant part of our contingency planning and this includes both the offshore and the onshore requirements for emergency response capability.

Page 186

Vessel and aircraft support includes the requirements for standby rescue facilities and helicopters, and again, that section is augmented by the helicopter operations manual.

And lastly, weather forecasting and monitoring, and that includes weather, oceanographic, meteorological, ice monitoring. There's significant portions of the year when that's a huge piece of our business. And then the management of all that data. So those requirements are all outlined in the logistical support section of the safety plan.

ROIL, Q.C.:

Q. Okay. If I could just take you, for a moment, to the vessel and aircraft support. We understand from other witnesses and other days that helicopters are a support to the vessels -- sorry, the facilities, and I guess the vessels, in the case of a possible emergency.

MS. FARRELL:

A. That's correct.

ROIL, Q.C.:

Q. Okay. Similarly, I guess, the vessels and other facilities can support the aircraft if they have a difficulty?

Page 187

MS. FARRELL:

A. It's absolutely interconnected and has to be.

ROIL, Q.C.:

Q. Okay. One of the things we talked about with other operators was the whole issue of standby vessels and then the close standby mode. I take it that you are familiar with those terms, one of you, and again, my questions are directed at the panel, whomever is best able to answer. We heard from other operators that a supply vessel can be in a certain range when it's in ordinary standby mode, but when a helicopter comes in, there's a closer standby requirement and there's a certain orientation. What can you tell us, in a few words, about the processes at the -- I was going to call it the Sea Rose -- the Terra Nova.

MR. VOKEY:

A. The FPSO. Typically on standby, the vessel has to be within 20 minutes. For a helicopter approach or a helicopter departure or if we're doing work, what we call over-the-side work, where a worker is exposed, you know, physically exposed to the edge of the vessel, you'll have you standby vessel not maintained

Page 188

at 20 minutes, but be right there. In terms of the helicopter, we will orientate the standby vessel downwind at a particular orientation, such in the event of an occurrence, he doesn't pose a problem or that vessel don't pose a problem to the helicopter, but they are in a readied position in the event of an incident to pick up people in the water.

ROIL, Q.C.:

Q. So again -

MR. VOKEY:

A. That would be a close standby for a helicopter.

ROIL, Q.C.:

Q. Yeah, one of the other operators said that stands off ten degrees. I'm not seeking to get the exact degrees, but there's a similar arrangement there for -

MR. VOKEY:

A. There's a window or a range based on, you know, vessel heading and wind direction that he would offset to be in an optimum position, such that when a helicopter comes in, if there were an incident at the installation, that

Page 189

vessels are ready to, you know, pick up people.

ROIL, Q.C.:

Q. And then under the subject of weather forecasting and monitoring, I'm not sure it comes up anywhere else, the whole issue of the wave height and the weather impacts on helicopter operations, again we've heard a fair bit about it. We've heard about trying to standardize the wave motion and the impact it has. What can you tell us about this particular FPSO and the impact that weather has on the ability of helicopters to land?

MR. VOKEY:

A. I'm not sure what the exact piece of equipment we use, whether it's a standard wave rider buoy now or not for the FPSO, but we do have electronic equipment. We do have standard meteorological equipment for measuring the various parameters, like an anemometer, you know, at specific elevations to measure wind speeds and things of that nature. But in terms of vessel motion, Terra Nova is different from the Sea Rose in that we have five thrusters and each thruster has a

Page 190

propeller on it that's 14 feet in diameter and they can orientate in any direction. So we can move the vessel around a turret and hold any position that we want. So we do have extremely good heading control, and that's an advantage. But if you take a look, say, at the helideck itself, our helideck is forward. Sea Rose is aft. There's a different motion characteristic on the bow or front of a vessel than you would typically have on the back of a vessel. So in terms of our weather limits, in terms of heave, pitch and roll, and heave is just a vertical movement. Pitch is the to and fro and roll is side to side. Our limits for night flying for helicopters, as an example, those limits are half of what they would be during the day.

ROIL, Q.C.:

Q. Okay.

MR. VOKEY:

A. So the vessel is required to be more stable during the night because night flying, and if you compare that, say, with the Sea Rose, their helideck is on the aft and Hibernia, well, it's a gravity base structure, it's like

Page 191

being on land.

ROIL, Q.C.:

Q. Yeah. So the two FPSOs might have different abilities to land and depart a helicopter based on the location of the helidecks and the weather conditions and the ability of the FPSO to move?

MR. VOKEY:

A. And the supporting equipment. Yeah, no two vessels are the same. Each one -

ROIL, Q.C.:

Q. For this purpose, we consider the FPSO a vessel.

MR. VOKEY:

A. Yes, yeah. For this purpose, like you know, if it's floating, no two are the same, and Cougar will actually take a look at each one independently and determine what the limitations are.

ROIL, Q.C.:

Q. Okay, and then similarly with the Henry Goodrich or any other MODU, do they have characteristics that determine when and when not to land a helicopter based on weather and wave conditions?

Page 192

MR. VOKEY:

A. They do have different motion characteristics than an FPSO. Their movement is more like that type of motion because it's got four different legs, but again, anything that floats or even if it don't float, I mean, Hibernia, Cougar would address each and every installation based on its own characteristics and that may be motion characteristics. It may be obstructions. Like Hibernia has two derricks, so Cougar would take that into consideration. The size of the helideck, you know, types of lights, whatever, that is taken into account for each facility they go. Before they flew offshore with us, Cougar did a number of flights while we were in sheltered waters, determining, you know, the characteristics of the vessel and, you know, if there were any limitations, and then when we got offshore, they did additional flights and that gets documented and they set their parameters around the characteristics of the vessel.

ROIL, Q.C.:

Q. Okay. So do I take it from all of that that

Page 193

standardizing weather conditions for landing and taking off with this wide variety of facilities offshore would not be a useful exercise?

MR. VOKEY:

A. For the purpose of the vessel motion, the impact on vessel motion?

ROIL, Q.C.:

Q. Yes.

MR. VOKEY:

A. Definitely not.

ROIL, Q.C.:

Q. Yeah.

MR. VOKEY:

A. Each one is unique.

ROIL, Q.C.:

Q. Okay. Sorry, Ms. Farrell, I didn't mean to -

MS. FARRELL:

A. No problem.

ROIL, Q.C.:

Q. - to jump up and down. Are you finished with this slide or were you -

MS. FARRELL:

A. Yes. So we'll just move to the other part of part six that I wanted to spend a little time

Page 194

on, which is the alert and emergency response plan section, and this final section really provides summary of the offshore and the onshore incident command structure, as well as our alert and emergency response plans. It also describes the coordination processes and protocols and so I'll touch on that just a little bit.

So specific topics that you'll see in this section includes our emergency response teams. That would be offshore and onshore. It also looks at the command succession. So for example, in the offshore command structure, if one of the key people was unable to perform the duties of their position, it would have a succession plan such that all of your emergency response roles are covered, even if something happens to an individual or a number of individuals.

It also covers the transfer of command in the event that we disconnect. As Mr. Vokey said, we are fully disconnectable. So in that case, you move from a situation where the offshore installation manager is in command to a situation where the vessel lead or the

Page 195

master mariner is in command and this has some very detailed command transfer protocols associated with it as well. So that would be outlined in this section of the plan.

Emergency response communications protocols, incident classification and the issue of emergency coordination, and that's sort of leading into that topic of mutual aid. So, and as I talk a little bit about how this comes alive, in terms of an emergency response structure, this is where you get into the situation of if the OIM has an incident or the offshore installation manager is managing an incident offshore, his accountability and authority to command support to help him with the management of that emergency.

ROIL, Q.C.:

Q. Okay, just are we going to deal with incident classification in the text? If not, I'd just ask you to -

MS. FARRELL:

A. Incident classification is more about the definitions, for example, and who we have to report to. So for example, types of incidents that require notification to the Joint Rescue

Page 196

Coordination Centre versus the RCMP versus the RNC. So these things sort of tie into that. It's not going back to our classification of events.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. Okay. So the last couple of slides that I've got really are just to give you a better sense of some of the emergency response protocols associated with helicopter operations. The first one that's here is about our over-arching emergency response organization, and the slide that I'm showing you is our onshore organization. So I'll just give you a little bit of background in terms of what happens offshore.

Mr. Vokey had that slide this morning that showed the field development concept with a MODU and supply boats and the FPSO and tankers, and so assuming that was a field on any given day, the offshore installation manager on the FPSO is actually the Terra Nova field commander, and so what that -

ROIL, Q.C.:

Page 197

Q. So he would be responsible -- he or she would be responsible for all of the appliances or assets that are -

MS. FARRELL:

A. Whatever is in that field, he ultimately would be the commander, and so in the event of an emergency, the OIM has the authority to request additional assistance, even from other installations. So it wouldn't be uncommon if the FPSO OIM said "I need a helicopter" and he realizes that there's one on route to the Sea Rose, he may, you know, say "okay, can we arrange to get that one here?" for whatever reason. So those are the kinds of decisions that he has the authority to make.

If onshore support is required, we have a team of training people who are on call 24/7.

ROIL, Q.C.:

Q. Who determines whether onshore support is required?

MS. FARRELL:

A. The OIM.

ROIL, Q.C.:

Q. So if that person is satisfied that it can be handled out there, they don't necessarily

Page 198

trigger -

MS. FARRELL:

A. We have emergency response plans, and I don't want to go too deep into the detail, but we call them sort of tier one and tier two, tier three.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. And so an emergency response tier one means that it's an event that can be managed by the OIM on that facility. There are triggers which require him to -- him or her to notify tier two support, which would be onshore, and then once that happens, we would make decisions about whether we would further escalate the response. But ultimately, the OIM makes the first decision about "can I manage this incident on my own or do I need onshore support?" So if it gets to the point of onshore support, then you'll see the type of organization that's on this slide coming into effect. Our plans rely on unified command, so you'll see up on the top that box that's shaded in blue, and what that

Page 199

recognizes is that we are not always the lead in responding to an event. So, for example, if a joint rescue coordination centre is managing the event, it would be a joint rescue centre incident commander that would work with our incident commander in terms of the response to the event. So that's what that box up on the top is --

ROIL, Q.C.:

Q. The lead agency's incident commander you're saying, if it was JRCC that you were engaged in with the rescue function, then that would be indicating them?

MS. FARRELL:

A. That's right.

ROIL, Q.C.:

Q. Who then would be the incident commander, which I gather would be the internal person?

MS. FARRELL:

A. We have a team of -- I think there's seven or eight of us. You're looking at three of them for sure. There's at least another four or five, and so we rotate that responsibility a week at a time.

ROIL, Q.C.:

Page 200

Q. So the incident commander doesn't necessarily refer to the most senior executive in the Atlantic region?

MS. FARRELL:

A. No, it's who's on call that day.

ROIL, Q.C.:

Q. Okay.

MS. FARRELL:

A. You have to be trained to be an incident commander.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. But, yes -- so it could be me today, or it could be Mr. Stacey or Mr. Vokey next week.

ROIL, Q.C.:

Q. And the idea of a pool is so that you ensure that there's always somebody who is --

MS. FARRELL:

A. It's 24/7 coverage in all of the areas that you see on this slide. The incident commander for our company is really the one that's concerned about the -- I call it the "Up and out management of the event", have we notified all the regulators, are we keeping in touch

Page 201

with the stakeholders, are we working with the lead agency if we're not the one in command. So that's the work of the incident commander. Underneath the incident commander there's a team of people, and you'll see that there's a significant degree of expertise that sits within these teams, and it's everything from operations, to planning, to logistics, and this group that's down on the bottom of the slide, they are the ones who are ensuring that the offshore installation has whatever it needs to respond to and manage the event. The incident commander centre team leader is the one who's doing the what I call "down and in management of that event", so making sure that each of these teams are doing their longer term plannings, looking at the next operational period, what do we need to do. That's the kind of stuff that that individual is concerned about. I just want to talk about the command staff box. It's actually a rather large group of people, quite specialized in nature, and this is where you'd see people like the risk experts, our environment health and safety people, regulatory affairs, human

Page 202

resources to provide support, for example, if it's a family related or employee related issue, and public relations, and you'll see that they report directly to the incident commander, giving him the advice - him or her the advice and guidance that they need to be able to manage the event.

ROIL, Q.C.:

Q. And are these employees of the organization or employees of the contractors that work with the organization?

MS. FARRELL:

A. It's -- for the most part it's Suncor employees, but there are some contractors who fill roles within these teams. It's probably a team of 80 to 90 people.

ROIL, Q.C.:

Q. Oh, so it's very large?

MS. FARRELL:

A. It's very large, and it's large because our philosophy is to get big quick. So if something happens, our preference is to mobilize this kind of a group, and if you have to send them home later because it's not that significant, it's much easier to send people

Page 203

home than to get part way into a response realizing that you don't have the resources that you need.

ROIL, Q.C.:

Q. So you recognize that at the beginning of an incident, you might not realize just what all the indications are, bring in everybody first, send them home if not required?

MS. FARRELL:

A. I've been in -- worked in this command structure for a long time, getting big quick is absolutely the right response. You can send people home, but you need that group, you need that level of expertise.

ROIL, Q.C.:

Q. I don't know if we come to it later; if we do, tell me because I'm not sure, would this kind of incident response have been put in place on March 12th?

MS. FARRELL:

A. Yes. Mr. Vokey will cover that later in the slides.

ROIL, Q.C.:

Q. Yeah, but this was the protocol that was called upon to be used, and then we'll find

Page 204

out how it actually worked.

MS. FARRELL:

A. Right.

ROIL, Q.C.:

Q. We heard from another organization that they have a dedicated meeting room for this group. How do you handle this kind of structure, is there logistical support in terms of your office gets commandeered, or is there a dedicated room?

MS. FARRELL:

A. We share an incident command space with Husky Energy because we're in the same office building, and so if it's an event for them, then they take over the facilities; if it's an event for us, we take over the facilities, and both of us have backup facilities. So on March 12th, Husky was operating out of what we would call our incident command centre, and we set up our operations in another area of the building.

ROIL, Q.C.:

Q. Okay, but this is simply a synergy because the two of you happen to be in the same building?

MS. FARRELL:

Page 205

A. In the same building, and there's an enormous amount of infrastructure that it takes onshore to be always ready to support this kind of a process, so it just makes sense, it's a natural synergy.

ROIL, Q.C.:

Q. Okay.

MS. FARRELL:

A. So I've just put two other protocols that come from our emergency response contingency plans into this section, and these are the ones that touch aspects of helicopter operations. So this slide here is a slide that depicts what would happen in the event that we have to do a medical evacuation from the facility, and I apologize, we tend to do everything in these kinds of flow charts and we think like this, and so this tends to work for us.

ROIL, Q.C.:

Q. Yeah, you have to walk us a little more slowly through it, but I think we'll be able to follow.

MS. FARRELL:

A. So the communication flow that you see is depicted here is directly from the offshore

Page 206

facility to Cougar. So if the offshore health advisor on the FPSO determines in consultation -- you see the line that says "medical consultation". If they determine in consultation with our medical service provider that we need to evacuate someone, that individual goes to the OIM and there's really no questions asked. The OIM immediately mobilizes Cougar, and Cougar and our medical team will work together to do all things in relation to the preparation of the helicopter, the medical response team, any special equipment, or even if we need to have Search and Rescue technicians on board for the medevac. That gets worked out between those two companies. You will also see that the offshore installation manager will notify our on-call person and there's a reason for that. We believe that if there's an event that happens and it impacts on people, then we need to be there to provide support to them. So if there's a medical evacuation from our facility, we will make sure that the support is there for the employee and for their family, and it's that team over on the other

Page 207

side, the logistics, communications, and human resource teams, they will ensure that the employee's family is notified, that the family, if they want to meet the helicopter when it's coming in, that we arrange to get them there, to do that, and essentially whatever the family needs is what we make sure will happen. So that's the way that this medical evacuation protocol works.

ROIL, Q.C.:

Q. Okay, so the employee assistance piece, the grief counsellors, those kinds of resources, they are tasked through these?

MS. FARRELL:

A. All of that right side of the chart, that's the stuff that they're worried about. As the helicopter is being mobilized, this team is working behind the scenes to do family notifications. It could very well be make sure the family gets to the hospital to meet the person, whatever it is that's needed, that's what we make sure happens.

ROIL, Q.C.:

Q. Would the protocols be different if it was an evacuation of one person from the facility as

Page 208

opposed to, for example, the evacuation of 30 people, or would it just involve more helicopters and other resources?

MS. FARRELL:

A. That would be one of those cases where you'd see -- if there was a multiple evacuation, that would be one of those cases where you'd see this team that I referred to on the previous slide. They would be immediately called out and we would start to make decisions about this is a much bigger response than just a one medical evacuation; how do we support that.

ROIL, Q.C.:

Q. Okay, so these various protocols can interact with one another if the fact situation requires it?

MS. FARRELL:

A. Absolutely. So the only other protocol that I wanted to review is what we call our helicopter return notification protocol. This particular protocol has been in place since early 2007, I think, and it was part of a proactive effort on our part to ensure communication and support to our employees.

Page 209

The scope you'll see is noted on the top of the slide in the yellow box. It refers to any helicopter flight to or from a Suncor facility that experiences an operational issue that necessitates immediate return to the heliport. So this is just one more protocol that's in the kit bag for the people that are on call. So I don't -- again we tend to work in these types of flow charts, but -- so I don't go through all of the steps in the process. What's important to understand is if there is an operational issue, Cougar immediately notifies us. So you'll see on the left hand side of this chart the arrow from Cougar down to our operations logistics person. So we are always notified. It's that person's job to then make sure two things happen; the offshore facility that the helicopter was on route to or from is notified so they understand what's going on, and that person puts the notification into our emergency response team. So the incident -- we call it the ICC team leader, in our incident reporting protocol, that person is immediately notified.

ROIL, Q.C.:

Page 210

Q. Okay, now just so that we understand the scope of this, so any flight to Suncor's facility that experiences an operational issue, so weather, would that -- if it turns around because of weather?

MS. FARRELL:

A. Weather would not be an operational issue. This would be something like, for example, a chip light.

ROIL, Q.C.:

Q. Yeah, the pilot of the helicopter sees a light come on his dashboard that tells him he has the potential for an issue, so the helicopter decides to turn around and come back?

MS. FARRELL:

A. Right. So it wouldn't include a helicopter that can't land because of weather. This is really meant to be some unusual circumstance.

ROIL, Q.C.:

Q. Okay.

MS. FARRELL:

A. That necessitates a return to base immediately.

ROIL, Q.C.:

Q. Yes.

Page 211

MS. FARRELL:

A. So we ensure -- by putting it into our emergency response process, we ensure that we make the decision what support do we need to provide. So this gives some rigour and some structure to that process.

ROIL, Q.C.:

Q. What was the trigger, if there was one -- I'm trying to picture a situation where I get on a commercial airline, and I won't belittle any of the airlines by saying they have these problems, but I'm on a flight from Toronto to St. John's and somewhere along the way the pilot comes on and says, you know something, we got to go back to Toronto, and I go back to Toronto and I'm on my own. What is it about helicopter transportation that makes this an issue that Suncor that concerned about?

MS. FARRELL:

A. When the S-92s first went into service, they were different, and so there are additional warnings lights, and I think we've had some discussion about that. So because there were chip light indicators and pilots making decisions to come back to base, and our

Page 212

employees didn't always necessarily know or understand what was happening, there was a real heightened sensitivity. So because of that we decided to put this protocol in place. It helped us onshore formalize the decision making process, so that we weren't -- if one person got the call that said there's a chip light on a helicopter, and they'd say, oh, that's nice, and then if somebody else got the call and they'd say, oh, we better figure out if we provide support, so this just automatically puts the structure in place so that we can make decisions. The most significant consideration about the extent to which we use this protocol is the decision that we make about the passengers that are on board and the extent to which they feel, or we feel that they might need support. So we will consult -- for example, if it's a flight to the FPSO, we'll probably consult with the offshore installation manager and the operations manager and say, given the individuals that are on the flight, do you think we need to mobilize people there, and we've done this over the years. So we may do

Page 213

something like mobilizing resources to the heliport to provide support to the passengers, or if we think that it's going to be a significant issue, again we may mobilize our full emergency response team to decide what else we might need to do.

ROIL, Q.C.:

Q. So this is, I take it, not just a safety, there's a communication piece to this too?

MS. FARRELL:

A. This is ultimately about communication and making sure that people have the information that they need, and it's also about making sure that they have the support that they need because helicopter travel is a part of their day to day lives. So if there's something that requires support, we make sure that they have the support.

ROIL, Q.C.:

Q. And so what -- if I'm the traveller and I come back and I'm concerned, I'm nervous, this flight has come back because of a warning light and I don't know warning lights from real problems, it might be a real problem as far as I'm concerned, I'm anxious, what kind

Page 214

of supports would I avail of or what kind of support would you give me, or explanations or information? How does it work out?

MS. FARRELL:

A. Yeah, several --

ROIL, Q.C.:

Q. Think a hypothetical person and a hypothetical case.

MS. FARRELL:

A. Several aspects of it. First and foremost, Cougar has to explain what happened. So if it's a chip light, either the pilot or the base operations manager or somebody with Cougar will do the first explanation to the passengers about what happened. If the passengers are saying, I feel very nervous, I feel very upset, that's one of those cases where we would mobilize our family response team to go to the heliport, typically with an operations manager or a more senior manager within the organization, to talk to the employees. If they felt that they needed to speak to an employee assistance program counsellor, we'd make sure that's happened.

ROIL, Q.C.:

Page 215

Q. I believe you were in the room, Ms. Farrell, the other day when the presenter, Ms. Michael, referred to the fact that an employee said if I have to suffer the stress of going out one day and having to come back, I shouldn't have to get on the next flight going out, but I should be able to stay there until the next day to get my comfort level up. Do you have any response to that kind of concern? Have you heard that actually from your workforce?

MS. FARRELL:

A. I would say that our first response to that is to make sure the employee gets the support. Frequently, just having somebody to talk to will make the difference between saying, I don't want to fly, and I'm okay to fly. So our counsellors are very well trained in this area, and, in fact, did some of that type of work immediately following the March 12th incident because we had employees who were offshore and onshore who said I'm not sure I can do this. So my first response is, there are supports available and our employees have over the years used our employee assistance program, I think, quite well. It's there to

Page 216

make sure that they get what they need. If somebody is so traumatized that they clearly can't go offshore, that's another reason why we make sure that there's somebody there to manage that. We're not forcing anybody back onto a helicopter if they are absolutely traumatized.

ROIL, Q.C.:

Q. And you rely on outside consultants and trained personnel to advise you on that?

MS. FARRELL:

A. And our operations manager, or -- I mean, it's a combination of people that will typically go to respond to this type of event.

ROIL, Q.C.:

Q. Unless you needed to go into further detail on that slide, I think you've explained to us the reason for this protocol. So I assume that -- you said you're just showing us a few of the protocols, but there are other protocols for other incidents that might not be relevant to our terms of reference?

MS. FARRELL:

A. Yes. So that's our review of the safety plan. We've now gone through the six sections. So

Page 217

now I'll turn it over to Mr. Stacey to deal with the next section, which is offshore transportation.

ROIL, Q.C.:

Q. Thank you, Ms. Farrell. Mr. Stacey, we have about fifteen minutes before the break, so we can get started now, and I'll keep an eye on the clock for you so that you don't have to worry about those things.

MR. STACEY:

A. Okay. In this section we'll look at some of the equipment used to support transportation to and from the offshore installations, and I think some of the good questions that were asked in the last section may actually have been covered here, or you've covered them, and I'll try to not dwell too long on them.

ROIL, Q.C.:

Q. Yeah, and I'll try not to ask them twice if they've already been answered, but we'll see.

MR. STACEY:

A. Okay. Transportation of people and materials is supported by a large infrastructure of trained competent people who provide a means to deliver workers and materials to our

Page 218

offshore installations, and they include the crews that man the helidecks, the cranes that unload and load helicopters, vessels and containers and other shipping devices, radio operators who track and provide information, specialists who create manifests, and leadership teams that monitor and supervise the overall operation. All of the people and materials come and go through two key portals; Cougar heliport, and the Harvey's marine base. Helicopters, as we've said before, are the primary means to transport personnel to and from the offshore, including their luggage. Occasionally cargo will be moved by air, and I think that's been fairly thoroughly discussed. Personnel are transported by vessel when flying conditions are not acceptable. Suncor strives, and I think this is important, to meet the rotational schedules of all of our offshore workers, the 21 and 21 rotation.

ROIL, Q.C.:

Q. If I might ask you to expand a bit on how when you have two or more facilities offshore, how a flight would be designated, does it go to the FPSO first or to the MODU? How does that

Page 219

sort of coordination piece work within your company?

MR. STACEY:

A. It works -- in our company and between the other operators, there are regularly --

ROIL, Q.C.:

Q. That's the second part of my question, so if you want to answer it all at the same time, please do, yeah.

MR. STACEY:

A. Okay. As I said, there are regularly scheduled flights on a weekly basis. Each of the installations have certain slots, I think is the term that's used, and depending on how the MODU is working for, or overtime those slots may have changed position, and I think the helicopter -- the logistics group that kind of steer and direct the work with Cougar would have to work to ensure that those slots are allocated properly and that the flights are then directly on a daily basis, for instance, in the Terra Nova field, to the FPSO, or the MODU.

ROIL, Q.C.:

Q. Okay, so it doesn't necessarily go first to

Page 220

the FPSO, depending on -- if it was a Suncor flight, it might go to the Henry Goodrich that was drilling for you at the time first, and then on?

MR. STACEY:

A. That's correct, actually, and in early 2000/2002 before the FPSO got on location, Suncor, Petro-Canada at the time, did have a slot because the rig was working steadily in advance of the FPSO arrival, and then when the FPSO arrived, another slot was added later in the morning for the flight to the FPSO, and they have moved around over time.

ROIL, Q.C.:

Q. Okay. I think I have some other questions, but they'll probably grow out of the next slide.

MR. STACEY:

A. Okay. As I said before, it's definitely a community offshore. The installations communicate directly with each other and share vessels and flights to maximize the benefits, helping each other meet objectives. The leaders recognize that sharing is important in our operating environment to meet our

Page 221

commitments for crew change, and to keep the operations effectively supplied. The standby vessels have fast rescue craft and trained crews to operate them. The vessels are certified to accommodate all the personnel from the FPSO and a drilling rig in the event of an emergency, and I should have said the standby vessels are certified to accommodate all of those personnel. The standby vessel always maintains its rescue zone free of obstructions. We have vessel sailings generally twice per week, and more frequently if a MODU is working. When vessels are considered for personnel transfer, the evaluation includes weather forecast, sea states, and the number of people backed up on crew change, as well as the outlook for personnel transfer by helicopter in the coming days. When on standby duty, the vessel would always be within 20 minutes of the installation. I think Mr. Vokey covered that quite well. Sometimes as well, the installation will request another type of close standby, which is not helicopter related, but installation activity related,

Page 222

and that's, for instance, when someone would be working in proximity to the edge of the vessel and they would request the standby vessel to come in and stand off, you know, 100 or 200 metres from the installation while that work goes on with their FRC crew ready. The next slide, please. As I said, helicopters are the primary means of moving people, and Suncor currently has one scheduled flight per day, Monday to Friday. Flights are added if the drilling rig would come back to work for us in the future. On occasion, a dedicated flight will be made for cargo without passengers on board, and any time there's a medical emergency declared on the installation, the medical evacuation or medevac would take priority over all other flights. We also transport other people with medical issues, both occupational and non-occupational, and as directed by our onshore medical service providers in consultation with the medics offshore, many times those are part of regular flight, but with priority over other passengers. Helicopters can also be used to sling loads. I don't know whether

Page 223

anybody has talked about that term.

ROIL, Q.C.:

Q. I think in a very small way. Just give us a one minute sort of --

MR. STACEY:

A. So that's a hook underneath the helicopter with typically a wire rope hanging from it, and then some kind of a load suspended from underneath there. That would be a slung or slinging a load. I think the best example of that would be the replacement of the flare tip on the flare towers. All of the installations to my knowledge use helicopters for that work, and essentially they would ship the flare tip which is, you know, a big piece of steel essentially offshore on a supply vessel, lift it up to the installation, prepare it for when the helicopter arrived, bring the helicopter out and then the helicopter would lift it up into position on the flare tower.

ROIL, Q.C.:

Q. Before we move this page, you say there's one scheduled flight per day to your facilities or facility as it is right now. What is the timing of that flight in terms of morning,

Page 224

afternoon, evening, that sort of thing? Is there a particular time or does it depend on what day of the week and what other commitments are being followed?

MR. STACEY:

A. Yes, it is a morning slot. Right now I think we're 10 o'clock departure right now. It's moved around. I think the earliest is 7 or 7:30, and those regularly scheduled flights are in the morning.

ROIL, Q.C.:

Q. The ad hoc flights that are scheduled as required, do any of those -- first of all, do you understand the expression "night flight"?

MR. STACEY:

A. Yes.

ROIL, Q.C.:

Q. Okay, what is a night flight? Is it a flight that takes off and lands in the night, or what part of the flight has to go into darkness for it to be a night flight?

MR. STACEY:

A. It would be considered a night flight if any portion of the flight before the helicopter returned was before official darkness.

Page 225

ROIL, Q.C.:
Q. So if it starts very early in the morning, it could be a night flight? This time of the morning, if it started at 5 o'clock, it could be a night flight?
MR. STACEY:
A. Yes.
ROIL, Q.C.:
Q. Or if it lands after 5 o'clock in the evening, it would be a night flight?
MR. STACEY:
A. Correct.
ROIL, Q.C.:
Q. Even though it took off at 2 o'clock in the afternoon?
MR. STACEY:
A. Yes.
ROIL, Q.C.:
Q. What is the position of Terra Nova and your company with respect to the use of night flights at this time?
MR. STACEY:
A. We still do conduct night flights, but the conditions under which they're conducted are - they're the exception, and there are certain

Page 226

circumstances that would be -- a list of considerations that would be run through before any night flight would be undertaken.
ROIL, Q.C.:
Q. And what kind of considerations in terms of things that we would understand, you know, is it weather or the need to have people out there, or what kind of issues are --
MR. STACEY:
A. Absolutely. You've covered two of the important considerations, both the weather, sea state offshore, the number of personnel, the reason for the flight, whether it was backup on crew change, the outlook in the future for the availability of helicopter transportation to clear the backlog in the coming days.
ROIL, Q.C.:
Q. I take it then that it is your company's conclusion that night flights per se do not present an undue risk to the transportation of individuals to your facilities, all of these things being properly analyzed, the weather being right, and other things being right?
MR. STACEY:

Page 227

A. We certainly place priority on transporting people during daylight hours. That's our policy, our Helicopter Operations Manual directs us to do that, but as you've stated, when we're -- when the conditions are acceptable and the need is there from the installation to get people's crew change completed, we will consider night flights.
ROIL, Q.C.:
Q. I think that's all I have for you on that at this time.
MR. STACEY:
A. Okay, the next slide, please. The Suncor Helicopter Operations Manual provides that helicopter operations will be undertaken in accordance with the requirements of relevant legislation and regulations pertaining to both offshore and aeronautical operations within the Canadian territory waters. Aeronautical activity shall be conducted under the auspices of Transport Canada Aviation, the C-NLOPB, who are responsible for enforcing regulations for offshore installations. The Helicopter Operations Manual is in place to assist our offshore and onshore teams in delivering their

Page 228

inputs and supports to the flying process. As was discussed at the joint panel, the aviation business is highly regulated, and our role as offshore operator of installations is to provide the supports necessary for the expert aviation service providers to deliver this service. Suncor has contracted for and relied upon that certified air transportation service. We recognize and respect the capabilities of the aviation industry, and support both the service providers and the certifying authorities to transport our crew safely to and from their workplace. The OIM and the offshore team are tasked daily with the provision of information for flight operations. In this role, we strive to be accurate and repeatable with the way in which we describe offshore conditions. For example, wind, sea states, vessel motions, helideck conditions, are all the data that pilots need to characterize the offshore conditions correctly before their decision to fly or not, and the manner and timing in which our offshore teams provide that data to Cougar is important in supporting the overall decision

Page 229

to fly. No two days are the same, no two flights are the same, and reliable information is the key to making good decisions. Accurate information regarding offshore conditions is just one example of how we support the flying process.

ROIL, Q.C.:

Q. The information that's provided by these personnel, who I take it are physically offshore --

MR. STACEY:

A. Yes.

ROIL, Q.C.:

Q. Are they employees of Suncor or are they employees of contractors, or is there a mix?

MR. STACEY:

A. On the FPSO, they would for the most part be staff, employees of Suncor. Themology (phonetic) would carry out the same type work and would be mainly contractors.

ROIL, Q.C.:

Q. I guess the next question is a loaded one, but I'll ask it, and I want your candid answer. Can you anticipate circumstances where the weather has been bad for a while, employees

Page 230

are anxious to get home, employees trying to go to work are anxious to get out, are there situations where in your view there is undue pressure put on the helicopter operator to make a flight happen?

MR. STACEY:

A. No, that's -- I don't think that that pressure exists. I think Cougar is very well positioned to intake the information and make their decision accurately using their criteria. I think that's our role as offshore operator is to characterize the conditions correctly, set aside the frustrations or the backlog or whatever it may be, and make sure that we in a repeatable fashion provide the information for Cougar, so that they can make an interpretation and the pilots ultimately can make their decision to fly or not.

ROIL, Q.C.:

Q. The information that you provide to them, is that documented and maintained as part of the records of the company?

MR. STACEY:

A. Yes.

ROIL, Q.C.:

Page 231

Q. So if anybody wanted to ask, they could go back and look?

MR. STACEY:

A. Yes, absolutely. Mr. Vokey pointed earlier to waves - to sea states offshore, and we do have a wave rider buoy in the field that gives the electronic data. I think Hibernia has a wave radar, which is a little bit of a different type device. They're both mechanical that takes the subjectivity out of it.

ROIL, Q.C.:

Q. To take the judgment out of it?

MR. STACEY:

A. Yes.

ROIL, Q.C.:

Q. Okay, it's 3:15, time for our break. We may not have finished on here, but we'll take a break now, Commissioner.

(RECESS)

ROIL, Q.C.:

Q. Okay, Mr. Stacey, we're back on the record again. So I'll hand it back to you, I didn't have any further questions on the slide that we dealt with, which was 70, so we're now on 71.

Page 232

MR. STACEY:

A. Okay, we'll proceed. HMDC spoke about a typical landing and take off from their installation and the list on this slide represents some of the content of our Helicopter Operations Manual. As you can see, in general it describes our processes which, in many ways, are similar to that of HMDC and Husky and I won't review the list in detail as the manual is in evidence and available for your review. This is really the content of the Helicopter Operations Manual.

ROIL, Q.C.:

Q. Yeah, Exhibit 141 is the manual and you are familiar with their Helicopter Operations Manual, more or less, you've heard enough about it to understand it?

MR. STACEY:

A. I'm familiar with ours and familiar generally with the content of theirs.

ROIL, Q.C.:

Q. No, I don't think--I think, you know, there's no issues arising out of that. I guess the first response capability, I think we've dealt with that, unless somebody has something else

Page 233

to add with respect to the issue of the one hour and how that was established and I'm not sure that, I don't know if either one of you has any ability to add anything we've heard about that?

MR. VOKEY:

A. No, not from me.

ROIL, Q.C.:

Q. Okay, well we know what it is and we have the comments of others and we'll take it from there. Where the limitations as the other area I was going to ask you about, but I think we dealt with that in terms of the earlier slide, so -

MR. STACEY:

A. Yes. Okay, the next slide please? The next section of the presentation will provide an overview of the offshore helideck and its certification and inspection, as well as some information around the training of the crew. The helideck on the Terra Nova FPSO is the largest of the three facilities. It has the capacity to park a helicopter and land another. It's about twenty-nine and a quarter meters in diameter, plus the parking area.

Page 234

The certification for the helideck on the FPSO was issued by Lloyd's Register in 2001. The certificate was issued following a review of the structural analysis of the helideck and the parking area, the safety features including the landing net, the safety net and the fire monitoring and lighting, as well as sign appraisal of the main support structure, the stairways, and railings and walkways and the landing area. With the plan to introduce the S92 into flight operations, Lloyd's issued a recertification against the Transport Canada standard TP4414E, and that's the guidelines respecting helicopter landing facilities on ships, and that was done in 2004.

ROIL, Q.C.:

Q. So the Sikorsky S92, is that a physically larger or heavier helicopter than the ones that have been employed before?

MR. STACEY:

A. It was larger than the Aerospatiale Super Puma that was used prior to that time.

ROIL, Q.C.:

Q. Right. So I take it that getting approval for a helideck isn't for all helicopters that are

Page 235

flying, you have to relate it to the one that you are intending to land on, on a regular basis?

MR. STACEY:

A. That's correct. On an annual basis, Lloyd's Register conducts an inspection of the FPSO helideck on behalf of Transport Canada and that inspection includes examination of structural aspects, including the helideck safety nets, the markings and the supporting structure, examination of the electrical and the control aspects, including the helicopter landing or obstruction lights. Function tests of the helideck fire monitors, there was discussion around those, the water and foam combination. And survey of emergency response equipment that is provided on the helideck. Cougar Helicopters also completes an annual inspection of the helideck. In the MODU Cougar and the certifying authority also inspect their helidecks on an annual basis.

ROIL, Q.C.:

Q. So what you said here about the FPSO helideck would apply to them as well?

MR. STACEY:

Page 236

A. Yes, it would.

ROIL, Q.C.:

Q. With the registered certifying authority, whatever it would be, be the one that would do it. Has it always been Lloyd's Register? I think you mentioned DNV, did you?

MR. STACEY:

A. For the FPSO it is Lloyd's Register.

ROIL, Q.C.:

Q. Yes.

MR. STACEY:

A. For the Transocean Henry Goodrich and the Glomar Grand Banks as well, it is DNV. So the certifying authority would do an inspection, as well as Cougar.

ROIL, Q.C.:

Q. Right, and for those that are purists, DNV is Det Norske Veritas?

MR. STACEY:

A. That is correct.

ROIL, Q.C.:

Q. A Norwegian certifying authority.

MR. STACEY:

A. That's right. Members of the helicopter landing team are also part of the on-board

Page 237

fire team and they have specialized training. Generally it's the crane operator who is the helicopter landing officer and has primary communication with the pilots while the helicopter is on deck. The helicopter team are fully suited and ready to respond to any emergency that may occur during landing, take off and while the helicopter is on deck and their training is covered in CAPP standard practice for training and qualifications, and that training includes a general outline of HLO responsibilities, some information on helicopter types and designs, so that they're familiar with each of the different machines that are out there. And helicopter operations including the effects of weather, so they understand generally the principles of how the helicopter operates and what things might affect it in different weather conditions. Helideck suitability and equipment that's available, communications network, prelanding considerations and preparations, landing and departure routines, what would happen if a helicopter had to start up or shut down on a helideck and special hazards and precautions

Page 238

that maybe needed to be taken, carriage and marking of cargo including dangerous goods, and lastly, fuelling control and procedures.

ROIL, Q.C.:

Q. How large is the helideck team when a regular flight comes in and lands, including the HLO, the helicopter landing officer, is the team two or ten people?

MR. STACEY:

A. Eight is what's coming to my mind.

MR. VOKEY:

A. Yeah, teams vary in size. I believe on the FPSO it's around five and it could be four to six, but it's close. I think on the Henry Goodrich the team is a little bit larger.

ROIL, Q.C.:

Q. So the team depends upon the facility that they're--the team size depends upon the facility?

MR. VOKEY:

A. That's my understanding, I'm the most familiar with the FPSO.

ROIL, Q.C.:

Q. And would the certifying authority be responsible for determining that number or is

Page 239

that something that's set out by C-NLOPB?

MR. VOKEY:

A. To be honest, I'm not sure.

ROIL, Q.C.:

Q. Okay, you're not sure who determines it, okay.

MR. STACEY:

A. That concludes this section of the presentation.

ROIL, Q.C.:

Q. Thank you, Mr. Stacey. I think we're going to move back to Ms. Farrell.

MS. FARRELL:

A. That's correct. So I'm going to cover two sections. The first on helicopter transportation suits and then I'll just wrap up with an overview of our FPSO safety handbook, so I'll talk to suits first. So the issue of flight suits was raised during the joint panel presentation and I believe Mr. Earle actually referenced issues with flight suits that had been identified on the Terra Nova FPSO in 2008.

ROIL, Q.C.:

Q. Because I think there was reference to some minutes of a meeting and is the quote that you

Page 240

have there, is it taken from somewhere?

MS. FARRELL:

A. Yes, I'll talk to that in just a second.

ROIL, Q.C.:

Q. Okay.

MS. FARRELL:

A. So, as you said, he provided the joint panel with an excerpt from the Occupational Health and Safety Committee minutes, and so I'd like to take a few minutes to walk through two things, really. First to try and fully understand the concerns that were raised and then secondly, what we did in response to the concerns, okay? So I'll start at the beginning of the story. We implemented the E452 flight suit in the fall of 2007 and I think we're all aware of that timing. Helly Hansen were present at the heliport to provide all outbound personnel with an orientation to the suit immediately following the implementation of the new suit, so that would have been late fall, November onwards for about a six-week period.

ROIL, Q.C.:

Q. Okay, do you have personal knowledge of that,

Page 241

is that something you recall or you have been able to research?

MS. FARRELL:

A. That's something I know by virtue of my discussions with Helly Hansen.

ROIL, Q.C.:

Q. Okay, because the impression that I think Mr. Earle had gotten and perhaps I had gotten too from Mr. Collin's evidence was that sort of the suits were brought out and that there was a fit card and perhaps he might have explained the fit card, but I didn't get the impression that there were Helly Hansen personnel available for a period.

MS. FARRELL:

A. The flight suits actually were reviewed offshore with the OHS committees, so they knew what was coming, but Helly Hansen--the operators at Helly Hansen have a representative at the heliport for the first six weeks after the implementation of the new suits to be able to help all the outbound passengers with the orientation to the new suit.

ROIL, Q.C.:

Page 242

Q. Okay, and the responsibility of that person was to assist in fit or in selection of size or do you know really how detailed that was?

MS. FARRELL:

A. Sizing.

ROIL, Q.C.:

Q. Sizing was the issue.

MS. FARRELL:

A. Yes. So from my knowledge of the flight suit issue, it really starts around the first quarter of 2008 within Suncor. They've been a regular item on our OHS committee agenda, in fact, it's been a standing item on our OHS committee agenda since 2008 on the Terra Nova FPSO. So this slide summarizes from March until June of 2008 the issues that were being expressed. And the first issue around concerns with zipping the E452 transportation suit, that would not be one issue, that would be multiple issues and I think you heard that in the joint panel as well, that there was a general feedback that the zippers were very stiff. There was also a specific reference to in our OHS committee to tight wrist seals and an improper face seal due to individual facial

Page 243

features.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. So these concerns actually came to me from the OHS committees and we, as Suncor, took three steps to investigate. So the first step, we met with Helly Hansen and representatives of the other operators. Two things we were trying to understand, the extent to which the issues that had been brought forward to Suncor, whether they were general issues or if they were just very specific to Suncor's FPSO. I can tell you that Suncor was the only operator that had an individual or individuals talking about facial features and face seals on suits. In general, the other operators said we haven't heard that from our workforce. So we were trying to understand is this a significant issue that impacts the entire workforce, or is it specific to our installation. So that was the first step. The second step we asked Helly Hansen to conduct a survey, so we wanted to better understand the extent to which this was an

Page 244

isolated issue or whether in fact there were significant issues. And at this stage, the suits had been in circulation for about six months. You have to recognize that in an offshore world when you say "six months", it's typically a rotation or two because you have to cut the time in half in terms of the number of times that people have actually flown. So by this time, people may have had two or three rotations wearing the suit, so we felt it was an appropriate opportunity to seek some feedback on the performance of the suits. And I know that Mr. Collins, when he testified in the fall, he actually talked about the survey that was done, so I'm not going to go into that in detail, I think he provided those results. The third thing that we asked Cougar to do was to ensure that passengers were able to fully don the suit, the hood and zip their suits prior to boarding flights. Now we made that quite specific, we wanted to make sure that people were in a seated position, as they would be in a helicopter if they were approaching an installation and had to don their suits. So they had to sit, don the hood

Page 245

and fully zip the zipper before Cougar would let people actually fly offshore. So those were the first three steps that we took to respond.

So Mr. Collins talked about the survey, we received the results of the survey and in general, the workforce was not talking about face seals. In general, the concerns that were being expressed related to zipper stiffness and wrist seals. We provided a summary of the survey to our OHS committee, the results of the survey in one of the OHS committee meetings and we also told them the work that Helly Hansen was doing with the zippers to try and improve the performance of them. And it's important to understand that the operation of the zipper was a primary area of focus for us in investigating and trying to understand the performance of the face seal of the suit. The stiffness of the zippers is a primary contributor to a person's ability to actually get their chin appropriately positioned in the face seal and achieve a seal.

ROIL, Q.C.:

Page 246

Q. So the seal can't go up--if the zipper can't go up, you can't get any -

MS. FARRELL:

A. You don't have a seal. And so the zippers was our primary area of focus because we needed to eliminate the zipper as an issue that was potentially impacting the face seal. But there were ongoing discussions, again at our OHS committee, over the course of the fall and so in December of 2008 and again in January, 2009, because everything you do at an OHS committee you end up having to do twice.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. We actually asked anyone on our FPSO who had an issue or a concern about their ability to don or fully zip the suit, to bring those issues forward so that we could fully investigate. And so you will see on the slide prior to March 12th we had one individual that came forward and between March 29th and May 17th, there were an additional 28 individuals that came forward. I should note that there was an OHS committee meeting in March of 2009

Page 247

and at that committee meeting, there was a discussion about the need for a broader dissemination of the communication about bringing forward issues and concerns, and so normally we would expect the OHS committee minutes to be posted, the reps would talk to people about the expectations. I think the committee reps felt a broader communications would be more appropriate and so the OIM or the offshore installation manager actually sent out an email reminder to people on the 2nd of April, 2009 saying again, if you have issues or concerns, bring them forward.

So between March and May, as individuals came forward--and I should indicate this was very specific to the Terra Nova FPSO, this is not something that was happening on the other installation. So between March and May, as individuals came forward requesting assessment, we asked them first to document their specific concerns so that we would understand is it an issue with boot size, is it an issue with face seal, is it that it's tight in the neck, so help up identify--help us in identifying your concerns. We then sent

Page 248

those individuals directly to Helly Hansen and Helly Hansen did a detailed set of measurements. I think when Mr. Collins was here he talked about the fact that the flight suit fitting process was a bit iterative, we hadn't done this kind of detail before. And so we went everybody for a detailed measurement and then in my discussions with Helly Hansen, they were saying it would be really good if our design people could see pictures of people in their flight suits as well, so we ended up having to get the folks that had already gone back offshore into a flight suit offshore and take some pictures and actually provide those to Helly Hansen as well. And all of this was data coming into them that they needed to be able to assess whether the suits were fitting appropriately. Ultimately the work that we started through that process rolled into our return to service flight suit fitting process that was started at the heliport with return to flight in May of 2009. And I'd remind you, Mr. Commissioner, that this is work that has not been done elsewhere in the world and it's work

Page 249

that has been recognized by the Transportation Safety Board as really a best practice in this industry. Our OHS committee communication continues on a regular basis. There is a series of presentations that have been provided in 2008 and 2008 about flight suits, the certifications. In 2009, we've been sharing information about the flight suit fit testing process, the water ingress testing and the work that we've been doing on the CGSB standards review, and that's just a normal part of our regular OHS committee communications.

So that summarizes the issues as we understood them, the activities that we undertook to respond and ultimately how that work rolled into the work that started with return to service in May.

ROIL, Q.C.:

Q. The importance of it and by "fit", I don't mean comfort, I mean the right suit to the right body size and shape, I take it that was not identified anywhere in the risk analysis or risk management process as being an important part of the integrity of the

Page 250

document? I think I asked the question earlier of somebody on the joint panel, I guess I put it to you, you know, this is not trying to be critical because we all have 20/20 hindsight, but if a diligent risk management process had been put in place and if we understood all of the risks fully, do you think that risk management would have helped us identify up front that not only was initial fit important, but that people couldn't be allowed to chose their size after the initial fit, because we have some sense that some people might have opted for a larger suit because it was more comfortable.

MS. FARRELL:

A. CGSB standard review process for us was a large measure of our risk management. There is an enormous amount of rigour that goes into the certification of the suits and Helly Hansen, when they responded to our bid for suits, they responded to our bid with a suit that was certified, not only to the aviation, but also the marine standards, and so from our perspective that is a key risk mitigation factor, all of the work that goes into the

Page 251

testing and the certification of those suits. The only other thing I would say is that our hazard identification process clearly identified to us, you know, one of those holes in the swiss cheese, if you want to put it that way.

ROIL, Q.C.:

Q. Yes.

MS. FARRELL:

A. By virtue of having a hazard identification process, whether it's flight suits or other matters, that is your opportunity to address hazards if we see them and clearly in our case they were seen, they were recognized, they were put forward to us and we began the process to try and understand better how is it that a suit that is duel certified has issues and that led us down the path of ultimately getting into the path of fit testing people for the suits.

COMMISSIONER:

Q. If I may, how did the water ingress testing go?

MS. FARRELL:

A. There was two sets of water ingress testing.

Page 252

The first was for the E452 suit and I think the joint panel talked about that, that was conducted in July, I actually attended that session in Nova Scotia. Our OHS committee reps from each of the facilities attended as well. The test was a far more rigorous test than what you would find under the CGSP standards and the water ingress results of that test were in fact very positive. The suits, I think Cord is the facility that does--that did the testing for us and they clearly said that this testing is a far more rigorous standard and clearly has demonstrated the the E452 suit is a very good suit. The second set of testing we did, I'm struggling to think whether it was November or December, it's a little blurry, but that was -

ROIL, Q.C.:

Q. I think we have some indication that it was late in November.

MS. FARRELL:

A. Late in November.

ROIL, Q.C.:

Q. Yeah, it was while we were cluing up our first round of hearings.

Page 253

MS. FARRELL:
A. And so that testing was in relation to the HTS1 suit, which is the new suit that's come into effect.
COMMISSIONER:
Q. The new suit, okay.
MS. FARRELL:
A. The testing results for that suit were even more positive than for the E452 suit, so both suits clearly withstand significant rigor in that testing protocol.
ROIL, Q.C.:
Q. So when properly fitted, the testing indicated that they allowed less water in than the standard would permit?
MS. FARRELL:
A. That's correct. And that was really a due diligence again that the operators felt was required on both suits to ensure ourselves that we are doing the appropriate due diligence at this point.
ROIL, Q.C.:
Q. How has that information been communicated to the workforce?
MS. FARRELL:

Page 254

A. The summary results are provided to the OHS committees and it's either done through a presentation that summarizes the results, if the--for example, if the report wasn't immediately available, and I know I just sent a copy of the Cord report for the second round of testing, I sent that offshore within the last week or two, so that's available to the OHS committees in the workforce.
ROIL, Q.C.:
Q. Are you continuing to see concerns with respect to suits from the workforce? Are there continuing concerns or expressions of dissatisfaction coming back from anybody at this point?
MS. FARRELL:
A. We're just implementing a feedback survey on the HTS1 suits, which are the ones that were introduced in late November, so at this stage, it's very early in that feedback process, so I'm not able to comment on what the feedback is on those suits.
ROIL, Q.C.:
Q. Okay. So I'll just take you then to the last section of my section of this presentation on

Page 255

the Terra Nova FPSO Safety Handbook.
ROIL, Q.C.:
Q. Again, the handbook itself is an exhibit as Exhibit No. 144, we don't need to bring it up on the screen, but if you wish to refer to it in terms of speaking around this slide, please feel free to.
MS. FARRELL:
A. The reason why we thought it important to put this in and discuss it just briefly, we know that the process by which people come onboard and ultimately get offshore, that's been reviewed in the joint panel, but this is one very well relatively small booklet that gives a high level overview of so much of what we've talked about here today, so whether it's introducing the concept of zero harm or our TLM standards, talking about fitness to work, change and health status, all of the things that have to happen before you go offshore, talking about helicopter arrival, departure procedures, all of that's covered in here and this is part of what every employee that works on the FPSO gets. Also in here, for example, our new worker induction. We have a green hat

Page 256

program where individuals who are new have to be identified as being new so that we can use that extra diligence. So all of that is covered in here. I think there were questions earlier on 5 by 5 and step back 5 by 5, what does that mean, all of those things are covered in here, so it's a very quick reference and it's a nice reference for people because it kind of takes them from their point of departure to their arrival back home and all of the stuff that they need in between.
ROIL, Q.C.:
Q. And when does an employee receive this booklet?
MS. FARRELL:
A. This is part of their new worker induction, so if they haven't seen it before they go offshore, it's part of what happens when they get offshore.
ROIL, Q.C.:
Q. Thank you, Ms. Farrell, I think we have dealt with that adequately. Now, Mr. Vokey, we will return back to you to deal with the March 12th incident and its consequences and outcomes.
MR. VOKEY:

Page 257

A. Petro-Canada's response to March 12th, Mr. Commissioner, was very different than that of the other operators because Flight 491 was a shared Husky and Hibernia flight. Our response was not in direct support to the families and friends of those who lost their loved ones on that tragic day. We did mobilize our incident command centre upon a report of a helicopter ditching en route to the Sea Rose FPSO and the Hibernia Platform.

ROIL, Q.C.:

Q. Did you have a helicopter that could have been in transit at that same time?

MR. VOKEY:

A. That's correct, we had one coming in at the same time.

ROIL, Q.C.:

Q. So the initial reporting didn't indicate precisely what flight it was, did it?

MR. VOKEY:

A. I had a good indication, as soon as Husky was aware that there was in impending issue, I got notification from them.

ROIL, Q.C.:

Q. Again, you work in the same office building?

Page 258

MR. VOKEY:

A. Well we work in the same, but that's a normal part of our protocol, as soon as one of the companies, you know, have a potential issue, other companies are notified and that week I was the incident commander on call for Petro-Canada. So while our primary role was to provide support to Husky and HMDC, we did have a flight inbound at the time. We also briefed our offshore personnel about 45 minutes after we were notified. As I noted, our role was one of support to Husky and HMDC and we quickly moved to mobilize additional employee assistance personnel specialists from our Ontario Petro-Canada teams, as we knew that the demands would potentially be high. We also ensured regular communication with our offshore workforce and that was throughout the day, and I'll talk a little bit more about later on after, and we immediately began diverting our vessels from normal cargo transport to personnel transport. Given the magnitude of this incident, we knew that, you know, helicopter operations were not going to be part of our normal activities for awhile

Page 259

and we started getting our heads around transporting people by vessel.

ROIL, Q.C.:

Q. So at that point in time, would the existing pool of vessels have been sufficient to take care of the demand or did additional vessels have to be procured?

MR. VOKEY:

A. We actually -- I believe in fact it was that day we started looking for additional vessels and we ultimately -- I'm going from memory now, but I'm pretty sure the vessel came out of the United Kingdom to support our operations. We knew that we would need additional personnel transfer equipment like the Frogs that I talked about this morning and that was -- I mean, that's one of the, I guess for lack of better words, advantages of supporting, you know, companies like HMDC and Husky. Because they were directly involved and we weren't, we could stand back a little bit and say "okay, we need EAP people. We're going to need additional vessels for transport. We're going to need additional, you know, Frogs," you know, things of that

Page 260

nature. So we did work somewhat close together with them.

I should note as well that in the three weeks following March the 10th for -- or sorry, March 12th, we had a senior representative from our company at the heliport for each of the vessels that came in to assist in debriefing of personnel.

ROIL, Q.C.:

Q. Okay. Now again, we have to make sure that others outside the room are understanding. When people came in off a vessel, they actually go to the heliport to disembark, do they?

MR. VOKEY:

A. That's correct. The heliport continued to be our base of operations. So in terms of individuals going offshore, even though they went by supply vessel, they had to be mobilized to and from Cougar's facility.

Over the course of the next two months, there was extensive communication forums and meetings which included meetings with the regulators and politicians, our OH&S committees offshore and onshore and that

Page 261

included the FPSO and the Henry Goodrich. We also had general safety meeting updates on all our facilities and there were specific meetings with the Communications, Energy Paperworkers Union, and we also had meetings with the Terra Nova Employers Organization that represents other contractors on the FPSO, and as noted during the joint panel presentation, we also provided responses to questions from our workers offshore. As was indicated previously, there was in excess of 350 questions. I think ultimately we grouped them and got them down, I think it was somewhere around 125 answers as the information we knew at the time. We also conducted onshore and offshore town halls and Mr. Stacey and Ms. Farrell and myself actually returned -- actually went offshore to both the Henry Goodrich and the Terra Nova FPSO as part of the return to service town halls, in conjunction with Rick Burt from Cougar and Max Ruelokke, the CEO of the C-NLOPB. So we were all actively involved in that.

Since that time, Mr. Stacey has indicated we have maintained a tracking register for

Page 262

issues as it relates to things related to helicopters following the March 12th incident.

ROIL, Q.C.:

Q. I think the evidence of the joint panel that the HOTF was an unprecedented and a process that there wasn't a procedure set down for, that it had to be developed ad hoc. It was a brand new response to a huge issue.

MR. VOKEY:

A. That's correct.

ROIL, Q.C.:

Q. I guess my question is, all these steps that you talked about, the communications with the Union, the general offshore safety meetings, were these things that were dictated by any of your procedures, or again, was this event so significant that it outstretched your ability to sort of plan that kind of response to that kind of event?

MR. VOKEY:

A. As part of the HOTF mandate and their terms and conditions, they had to develop a road map as part of their mandate for return to service, and the communications plan was a key part of that, and what we wanted to ensure was

Page 263

industry alignment. That was one of the objectives, and we wanted to also make sure that we engaged all appropriate stakeholders to the widest, you know, that we could. So we had -- as we indicated, we had town halls onshore where we invited our workers plus their families, and prior to returning flights to offshore, senior leaders from each of the companies went to all their respective installations and reviewed the HOTF report, the recommendations and the plans for resumption of helicopter services, and that was, I think, in the second week of May 2009. So it would have been two months after the incident.

ROIL, Q.C.:

Q. We're not a year yet to the anniversary of that unfortunate and difficult day. You still travel offshore. You meet the workforce. Are the events of March 12th still the subject of regular discussion in the workforce and in any meetings and things that you have with workers?

MR. VOKEY:

A. I personally think they are, especially

Page 264

considering I mean we're still in an Inquiry, and I was around at the Ocean Ranger time and whether it's, you know, 17 or 18 people or, you know, 84 people, I don't think it really makes a difference. It sticks with people for a long time and there is a heightened sensitivity and that's understandable.

MS. FARRELL:

A. If I can just add to that? At the offshore town halls, we made a commitment to continue very proactive communication about all aspects of helicopter operations, and so whether it's in their minds because they remember what happened or it's because we continue a very high level of communication about helicopter operations, it's there. But it was our commitment to improve our communication around all aspects of helicopter operations.

ROIL, Q.C.:

Q. Okay, thank you.

MR. VOKEY:

A. Mr. Commissioner, in conclusion, on behalf of Suncor Energy and the panel with me here today, Mr. Stacey and Ms. Farrell, I want to thank you for the opportunity to present at

Page 265

this Commission. As I indicated at the beginning, there's nothing more important for us, as operators, than the safety of our workforce and we are committed to that. The tragic events of March the 12th remind us all of the need to be vigilant in our day-to-day activities and on a go-forward basis. The work of this Commission, we believe, will be important in helping all of us learn from this tragedy and in identifying ways we can continue to improve safety and prevent incidents like this in the future. We want to support this very important work and that is why we're pleased to have the opportunity to be here today. Thank you.

COMMISSIONER:

Q. Thank you.

ROIL, Q.C.:

Q. Thank you, panel. Commissioner, that's all the questions that I have at this time. So it's ten after four. I don't know whether you would want to begin the examination by other parties, but we have 20 minutes left, if that's of any benefit.

COMMISSIONER:

Page 266

Q. Well, let me ask. I suppose really, you may want to reflect -- I'm speaking you collectively -- overnight whether you'd like to ask any questions. Is that a fair observation, or do some of you know now whether you would or wouldn't or would you rather wait, think about it, and come back in the morning?

EARLE, Q.C.:

Q. The world has not changed, Mr. Commissioner. I will be asking some questions.

COMMISSIONER:

Q. Oh yes, I anticipated that, but it might be wise to give people a chance to think about it and -

ROIL, Q.C.:

Q. Yeah, we do have a full day tomorrow that is set aside.

COMMISSIONER:

Q. Yes.

ROIL, Q.C.:

Q. The world works in mysterious ways. When we set up the schedule, I wondered whether weather would ever impact us. There is some sort of a weather event coming to

Page 267

Newfoundland, according to Environment Canada and the other sources that I personally use. I'm seeing numbers anywhere from 16 to 30 centimetres, together with high winds. That might be a normal working day on the rigs, I don't know, but it certainly might impact our ability tomorrow. But the event is supposed to come in later in the morning. So I don't think we'd have difficulty getting here. Whether we'll go home or sleep here is another matter entirely.

COMMISSIONER:

Q. Yes. If we can keep to our schedule, all to the good, I guess. So unless anybody has serious objections, we'd start at 9:30 and see how the day goes. All right. Thank you.

Page 268

CERTIFICATE

We, the undersigned, do hereby certify that the foregoing is a true and correct transcript of a hearing heard on the 20th day of January, 2010 at Tara Place, 31 Peet Street, Suite 213, St. John's Newfoundland and Labrador and was transcribed by us to the best of our ability by means of a sound apparatus.

Dated at St. John's, NL this 20th day of January, 2010

Cindy Sooley
Discoveries Unlimited Inc.

Judy Moss
Discoveries Unlimited Inc.

-'-
'97 [1] 10:21

-that [1] 252:11
-1-
1 [8] 44:6 50:21 51:19 61:15 110:22 111:1,6,8
10 [2] 51:5 224:7
100 [1] 222:4
100s [1] 62:24
10th [1] 260:4
11 [1] 12:7
110 [2] 27:4 73:10
12 [2] 27:5 180:21
120 [1] 50:8
125 [1] 261:14
12:30 [1] 143:5
12th [19] 6:8 14:13 16:9 75:22 105:4 125:24 130:8 141:4,11 203:19 204:18 215:19 246:21 256:23 257:1 260:5 262:2 263:20 265:5
130 [3] 27:4 50:8 73:11
138 [1] 3:9
139 [1] 3:10
14 [1] 190:1
140 [3] 117:1,2 119:8
141 [1] 232:14
144 [1] 255:4
145 [1] 3:10
146 [2] 27:3 73:9
15 [2] 67:14 153:7
1500 [1] 27:10
16 [1] 267:3
17 [1] 264:3
17th [1] 246:23
18 [1] 264:3
1917 [1] 17:6
1919 [1] 17:8
1967 [1] 17:8
1975 [1] 8:13
1976 [1] 16:16
1980 [1] 8:22
1980s [2] 19:13,16
1984 [2] 19:10,11
1986 [2] 9:17 12:3
1988 [1] 19:11
1991 [1] 16:17
1992 [1] 10:10
1996 [1] 19:18
1997 [2] 12:10 20:13
1st [1] 17:14
-2-
2 [7] 50:22 52:11,20 53:7 53:7,13 225:14
2.4 [1] 119:21
2.4.1 [1] 119:23
20 [13] 1:1 20:11 22:24 67:15 72:10 93:21 132:13 146:13 153:7 187:20 188:1 221:20 265:23
20/20 [1] 250:5
200 [1] 222:5
2000 [1] 26:11
2000/2002 [1] 220:7
2001 [3] 10:24 39:12 234:2
2002 [1] 20:17
2004 [1] 234:15
2005 [1] 20:19
2007 [4] 26:12 34:6 208:23 240:16
2008 [14] 11:5 12:23 99:5 99:12,12 125:23 127:4 239:22 242:11,14,16 246:10 249:6,6
2009 [20] 11:5 17:12 26:5 26:14,18 101:1 103:20 104:2 124:20 125:22,24 126:6 127:5 147:16 246:11,25 247:12 248:23 249:7 263:13
2010 [6] 1:1 39:15,17 124:21 268:4,10
2025-2027 [1] 33:15
20th [2] 268:4,10
21 [3] 74:23 218:20,20
212 [1] 9:23
213 [1] 268:5
23 [2] 20:22 27:15
24 [2] 84:21 119:16
24-hour-per [1] 120:3
24/7 [3] 185:7 197:17 200:20
25 [2] 7:25 33:14
250-260 [1] 23:19
27 [2] 20:19 27:15
28 [1] 246:23
29th [1] 246:22
2nd [1] 247:12
-3-
3 [3] 40:12 50:22 53:5
30 [6] 19:9 86:10 93:22 161:19 208:1 267:3
31 [1] 268:5
34 [1] 20:15
350 [1] 261:12
3:15 [1] 231:16
-4-
4 [2] 40:15 50:23
40 [1] 161:19
412 [1] 11:12
45 [6] 177:19,19,21,24 178:1 258:10
491 [2] 6:8 257:3
-5-
5 [16] 40:19 50:24 53:7,8 81:13,14,17,17 88:15,15 225:4,9 256:5,5,5,5
50 [1] 93:22
51 [1] 156:23
-6-
6 [3] 40:21 50:25 53:3
60 [1] 86:10
-7-
7 [2] 51:2 224:8
70 [3] 6:24 10:3 231:24
71 [1] 231:25
7:30 [1] 224:9
-8-
8 [1] 51:3
80 [2] 23:14 202:16
84 [1] 264:4
-9-
9 [2] 51:3 180:21
9,000 [1] 27:11
90 [1] 202:16
90s [1] 175:12
9:30 [1] 267:15
-A-
abilities [2] 150:7 191:4
ability [12] 34:9 125:16 162:8 167:12 189:13 191:6 233:4 245:21 246:17 262:17 267:7 268:7
able [17] 69:1 78:9 81:10 88:6 91:20 104:24 139:25 170:24 187:9 202:7 205:21 215:7 241:2,22 244:18 248:17 254:21
above [1] 7:5
absolutely [14] 73:20 87:25 116:13 121:13 128:6 133:19 151:23 184:25 187:2 203:12 208:19 216:6 226:10 231:4
absorbers [1] 29:20
accept [2] 3:8 166:3
acceptable [5] 161:2,5 168:14 218:17 227:6
acceptance [2] 166:4,5
accepted [4] 9:6,16 10:4 11:5
access [17] 3:6 15:7 55:8 56:12,16 65:15 66:11,16 68:25 77:11,16,17 80:22 90:24 103:12 138:13 185:7
accident [2] 71:16 76:16
accidents [3] 62:12 63:3 134:14
accommodate [4] 24:17 27:3 221:5,8
accommodation [1] 25:3
accommodations [1] 30:18
accordance [1] 227:16
according [1] 267:1
account [2] 166:17 192:14
accountabilities [2] 53:13 144:6
accountability [6] 18:4 53:2,4,6,19 195:14
accountable [6] 13:2 68:1 96:2 144:9 145:14 150:11
accurate [2] 228:17 229:3
accurately [1] 230:10
achieve [4] 71:4 86:20 143:19 245:23
achieved [2] 18:1 173:11
achieving [1] 6:19
acronym [2] 46:6 65:7
Act [1] 96:6
action [12] 52:25 53:10 65:11 86:9 129:4,6,7,11 129:17,22 130:3 134:24
actions [13] 61:17 65:6 77:5,6,13 80:17 129:3,8 129:18,24 135:8 136:25 156:8
active [3] 84:22 177:13 179:9
actively [2] 79:19 261:23
activities [22] 16:9 46:19 46:23 73:25 99:14 100:18 112:8 157:23 160:22,25 161:2 162:3 164:4,11,12 167:24 169:2,4 171:14 249:15 258:25 265:7
activity [14] 19:8 27:5 33:10 63:11 123:22,23 142:15 160:23 161:6,21 180:14 181:10 221:25 227:20
Acts [1] 95:22
actual [4] 27:25 112:20 113:21 116:23
ad [2] 224:12 262:7
add [4] 70:15 233:1,4 264:9
added [3] 79:15 220:11 222:10
addition [6] 13:22 100:16 102:8 131:25 137:11 174:8
additional [15] 15:25 26:13 90:19 166:8 183:16 192:20 197:8 211:21 246:23 258:13 259:6,10 259:15,23,24
additionally [2] 103:14 105:14
address [7] 52:17 79:17 86:9 182:7,17 192:7 251:12
addressed [3] 70:6 77:3 130:12
addresses [1] 135:2
adequately [1] 256:22
adjacent [1] 28:7
administer [1] 4:22
administered [1] 96:7
advance [2] 14:10 220:10
advantage [1] 190:6
advantages [2] 152:11 259:18
advice [3] 97:4 202:5,6
advise [1] 216:10
advisor [2] 185:6 206:2
aeronautical [4] 170:16 184:2 227:18,19
Aerosafe [1] 164:18
Aerospatiale [1] 234:21
affairs [2] 13:6 201:25
affect [1] 237:19
affecting [1] 56:13
aft [3] 25:2 190:8,24
afternoon [3] 155:16 224:1 225:15
again [63] 1:7 3:11,17 4:16 7:16 9:17 10:9,25 24:13 33:4,6 34:20 35:17 35:21 41:3 43:10 44:13 45:11 48:12 49:13 66:10 68:23 74:17 76:4 77:10 85:6 92:5 104:7,24 123:21 124:14 129:1 133:12 134:20 136:20 138:5,10 139:9 150:19 151:4 152:1 166:24 174:20 181:6 182:9 183:20 184:22 186:3 187:8 188:11 189:8 192:5 209:8 213:4 231:22 246:8 246:10 247:12 253:18 255:3 257:25 260:10 262:16
against [3] 53:24 116:19 234:12
agencies [3] 100:9 104:13 107:22
agency [1] 201:2
agency's [1] 199:10
agenda [3] 74:13 242:12 242:14
ago [7] 19:9 25:15 26:17 31:1 67:15 69:8 107:14
agree [3] 67:9 94:3 105:2
agreed [1] 126:3
agreement [2] 26:15 183:1

agreements [1] 179:23
ahead [1] 175:24
aid [4] 98:18 182:24 183:1 195:8
aids [1] 46:2
air [2] 218:14 228:8
aircraft [8] 93:19,21 132:7,9 139:12 186:1,15 186:24
airline [1] 211:10
airlines [1] 211:11
airworthiness [1] 132:24
Alberta [4] 9:8 17:1,11 48:5
alert [6] 132:24 182:8,20 183:11 194:1,5
align [3] 82:17 84:16 86:24
alignment [2] 146:5 263:1
alive [1] 195:10
Allan [2] 143:13 149:9
allocated [1] 219:20
allow [2] 2:22 120:12
allowed [5] 79:10 165:20 168:8 250:11 253:14
allows [3] 137:9 180:19 181:5
almost [1] 19:9
along [3] 91:21 131:14 211:13
altering [1] 137:6
alternative [1] 166:6
always [15] 112:14,22 122:13 129:21 146:14 185:5,7 199:1 200:18 205:3 209:16 212:1 221:10,20 236:5
America [1] 17:18
Among [1] 6:23
amongst [2] 53:14 137:19
amount [4] 15:21 82:18 205:2 250:18
Analysing [1] 65:11
analysis [17] 159:16,23 162:24,25 163:1,2,4,5 166:12,22 167:4,4,7,18 172:25 234:4 249:23
analyze [3] 65:14 134:22 137:10
analyzed [2] 135:5 226:23
anchor [1] 110:25
anemometer [1] 189:20
animals [1] 181:14
anniversary [1] 263:17
announced [1] 17:13
annual [9] 102:12 103:15 106:17 125:6 133:7,12 235:5,18,21
annually [1] 39:13
anonymous [4] 67:21 69:16,25 103:14
anonymously [1] 70:7
answer [11] 66:15 69:23 74:18 78:10 104:8 121:7 171:1 180:8 187:10 219:8 229:23
answered [1] 217:20
answers [1] 261:14
anti [1] 91:11
anticipate [1] 229:24
anticipated [1] 266:13
anxious [3] 213:25 230:1 230:2
anytime [1] 121:15
anyway [2] 158:10 164:25
apart [2] 22:24,24
apologize [1] 205:16
apparatus [2] 29:17 268:8
appliances [2] 107:5 197:2
applicable [4] 85:11 91:18 95:22 143:20
applications [1] 99:13
applies [2] 36:22 39:25
apply [7] 55:10 97:4 99:8 110:4 165:21 169:1 235:24
appraisal [2] 19:12 234:8
appreciate [1] 6:21
approach [2] 140:18 187:21
approaching [1] 244:24
appropriate [13] 76:1 77:7 107:15 124:16 128:25 130:2 169:8 171:23 183:22 244:11 247:9 253:20 263:3
appropriately [3] 77:3 245:22 248:18
approval [1] 234:24
approved [2] 46:16 125:1
April [1] 247:12
arching [1] 196:13
area [28] 3:25 25:10,11 27:18 34:17 36:18 48:19 55:21 70:17 78:25 94:12 123:15,20 124:1 127:4 130:4 148:15 165:21 184:9,15 204:20 215:18 233:12,25 234:5,10 245:17 246:5
areas [17] 13:4 37:13 38:19 55:11 56:13 94:6 98:23 107:13,19 116:2 125:4,8 143:25 146:23 165:8 176:3 200:20
arise [1] 138:14
arising [3] 93:15 155:18 232:23
Arm [1] 71:24
arrange [2] 197:13 207:5
arrangement [1] 188:19
array [1] 84:15
arrival [3] 220:10 255:21 256:10
arrived [2] 220:11 223:18
arrow [1] 209:14
art [1] 58:11
articulated [1] 112:18
aside [3] 77:15 230:13 266:18
aspect [1] 48:3
aspects [11] 59:5 97:1 110:22 152:17 163:21 205:12 214:10 235:9,12 264:11,18
Assembly [1] 68:15
assess [7] 38:10 63:19 124:9,21 126:8 162:18 248:17
assessed [2] 53:21 160:18
assessment [15] 52:19 105:3 123:22 159:20,24 159:25 160:4,8,11,15 167:17 168:23 169:13 171:13 247:20
assessments [2] 38:25 182:10
asset [13] 6:1 16:1,18 17:4 143:21 144:8,15,23 144:25 147:18,23,25 154:5
assets [18] 13:8,25 14:2 16:6,14,21 17:2,22 20:3 20:4 22:7 46:21 126:19 128:8 144:17,17 145:2 197:3
assign [2] 51:21 115:5
assigned [4] 12:11 52:22 129:4,6
assignment [1] 11:6
assignments [1] 74:22
assist [4] 34:20 227:24 242:2 260:8
assistance [5] 197:8 207:11 214:23 215:24 258:14
assisting [2] 8:9 70:25
associate [1] 6:13
associated [11] 39:9 40:18 56:1 115:4 159:15 161:1 166:14 167:1 176:7 195:3 196:11
Association [1] 14:6
assume [1] 216:18
assumed [1] 30:16
assuming [1] 196:21
assurance [3] 112:23 115:20 133:5
Athabasca [1] 17:10
Atlantic [2] 175:7 200:3
attend [1] 86:16
attended [3] 86:17 252:3 252:5
attending [1] 88:5
attends [1] 93:7
attention [4] 14:14 37:20 147:20 150:13
attribute [1] 161:3
audit [33] 53:24 102:14 102:18 103:19 104:3,23 105:11 106:18 116:15 118:18 122:4,10,13 123:7 123:10 124:9,13,14,24 125:6,21 126:10 127:11 128:14,20 129:3,24 133:7 133:17,23,25 169:8 179:8
audited [3] 104:16 133:23 174:6
auditing [4] 104:12 122:17,17 146:10
auditor [1] 104:15
auditors [1] 106:18
audits [25] 51:2,13 102:10,12 103:4,5,18 105:15,24 106:8,14,17 122:6 125:7,17,19 126:18 128:18,24 133:13 166:15 169:18,21 170:3 176:20
augment [2] 37:13 40:4
augmented [1] 186:4
augments [1] 37:7
August [1] 17:14
auspices [1] 227:20
authorities [2] 108:18 228:12
authority [12] 96:13,14 96:16 106:5 195:15 197:7 197:15 235:20 236:3,14 236:22 238:24
authorization [4] 90:9 98:25 99:18 102:17
authorizations [5] 32:25 99:17,19 102:16 120:1
automatically [3] 24:3 109:7 212:12
avail [1] 214:1
availability [1] 226:15
available [13] 40:24 81:25 136:4 141:20,21 162:13 183:17 215:23 232:10 237:21 241:14 254:5,8
average [4] 132:13 160:22 178:13 179:4
averaged [1] 106:13
aviation [32] 57:13 62:14 98:4,5,7 104:15 114:11 114:15,21 117:22 126:10 126:22 127:7 128:16 130:23 131:8,13,20,21 132:11,20 133:1,7,10,12 139:11 140:18 227:21 228:2,6,10 250:22
avoid [2] 67:2 92:2
award [2] 113:21 116:4
awarded [2] 115:23 118:3
aware [10] 7:13 30:15 64:20 78:3 110:16 127:9 130:15 138:19 240:17 257:22
awareness [1] 178:5
away [2] 104:18 105:22
awhile [1] 258:25

-B-

Bachelor [2] 8:15 12:3
backed [1] 221:16
background [4] 16:2 28:4,21 196:16
backing [1] 28:16
backlog [2] 226:16 230:14
backup [3] 118:9 204:17 226:14
bad [1] 229:25
bag [2] 95:2 209:7
balanced [1] 170:24
Banks [3] 25:23 26:24 236:13
base [9] 16:18 20:10 136:21 190:25 210:22 211:25 214:13 218:10 260:17
based [29] 17:4 31:7 42:9 46:5 47:11 60:13 75:10 80:3,7 92:1,15 101:23 102:1 107:10,11 108:3,7 109:4,11 110:6 112:12 116:24 123:22 143:14,17 188:21 191:5,24 192:8
basic [4] 32:25 46:7 64:24 178:9
basics [1] 9:13
basin [2] 19:22 132:1
basins [1] 1:17
basis [29] 13:18,19 26:12 46:14 79:5 80:25 85:22 101:5 103:15 109:3 120:4 127:21 128:16 131:16,19 132:21 135:13 147:2 153:3,6 157:15 167:20 219:12,21 235:3,5,21 249:4 265:7
basket [1] 29:22
bear [1] 80:19
beast [1] 31:1
Beaufort [2] 9:18 10:4
become [7] 59:14 60:20 127:9 138:18,18 141:4,8
becoming [2] 16:17 93:23
bedroom [1] 60:12
began [6] 16:15 17:6,15 159:16 251:15 258:20
begin [2] 156:24 265:22
beginning [5] 36:7 111:4 203:5 240:15 265:2
behalf [6] 5:23 99:23 112:5 133:8 235:7 264:22

behave [3] 57:5 61:7,8
behaviours [5] 49:2,4 57:18 58:8 80:17
behind [3] 79:7 181:3 207:18
belief [4] 43:21 59:2,4,8
believing [1] 92:10
belittle [1] 211:10
Bell [2] 9:23 11:12
belongs [1] 88:13
below [1] 154:12
beneficial [1] 131:11
benefit [2] 109:22 265:24
benefits [3] 92:20 152:9 220:22
best [7] 14:1 64:23 121:7 187:9 223:10 249:2 268:7
better [10] 2:12,13 63:2 101:14 180:3 196:9 212:10 243:24 251:16 259:18
between [30] 3:24 22:21 23:1 26:15 27:4 29:1,4 38:1 43:3 45:21 69:5 73:10 86:10 87:4 90:12 100:11 101:3 108:2 160:20 161:15 178:14 179:4 180:24 206:15 215:15 219:4 246:22 247:14,18 256:11
beyond [2] 59:9 138:2
bid [11] 113:18,19,20 115:6,7,10,16 117:20,25 250:20,21
bidder's [2] 115:18,22
bidders [2] 115:8,8
big [3] 202:21 203:11 223:15
bigger [1] 208:11
biggest [1] 153:22
bit [39] 15:18 35:20,25 37:18 39:20 44:10 49:5 49:8,23 58:8 60:14 61:4 101:21 102:5 103:22 104:9 110:9 113:8,23 117:8 122:6 128:15 146:1 148:21 169:9 172:1 173:22 174:22 175:16 189:9 194:8 195:9 196:16 218:22 231:8 238:15 248:5 258:19 259:22
black [1] 165:18
blast [2] 25:2,11
blow [1] 108:11
blowing [1] 161:19
blue [3] 185:11,14 198:25
blurry [1] 252:17
board [37] 13:21 18:19 27:4 39:8 47:13,18 69:21 71:7,12 87:12 98:7,11 99:24 100:13,19 101:1,3 102:11,12,21 103:4,12 103:13,15,18 107:9 137:16 149:16,23 167:23 170:17 176:19,20 206:14 212:17 222:14 249:2
Board's [7] 35:9 69:23 97:13 98:15 99:8 102:14 103:5
boarding [1] 244:20
boards [1] 91:24
boat [3] 28:1 29:2 30:2
boats [4] 29:11 119:2 185:17 196:20
bodies [4] 101:18,20 102:3 128:18
body [4] 80:13 107:15 170:15 249:22
book [3] 76:11,12,13
booklet [3] 174:25 255:14 256:14
boot [1] 247:22
born [3] 8:16,18 12:1
Borrow [1] 88:10
boss [1] 150:15
bottom [12] 20:17 24:19 38:4 49:1 57:3 64:25 81:12 96:8 113:7 146:7 177:19 201:9
bow [1] 190:9
box [6] 64:14 164:17 198:24 199:7 201:21 209:2
boxes [1] 45:25
brand [2] 135:21 262:8
breach [1] 25:1
break [13] 44:10 66:6 68:17 70:10 143:6 151:6 155:9,11,12 181:6 217:6 231:16,18
breeds [1] 93:16
Brian [6] 4:9,25 5:4,12 6:2 7:22
bridge [2] 89:10,23
bridging [3] 89:3,8 90:2
brief [2] 10:12 16:11
briefed [1] 258:9
briefing [1] 93:20
briefly [2] 21:15 255:10
bring [22] 34:10,19 60:23 61:6 68:7,8 69:3 80:19 85:5 86:3 87:7 97:3 119:7 125:13 138:10 150:7 169:17 203:7 223:18 246:18 247:13 255:4
bringing [5] 34:13 63:24 83:14 127:3 247:4
broad [1] 144:23
broader [2] 247:2,8
broadly [1] 85:11
brought [5] 72:14 74:8 170:21 241:10 243:11
Brown [4] 143:13 148:5 149:9 150:22
BST [4] 10:22 11:8 173:14 178:25
bubbles [1] 45:25
build [7] 18:15 50:13 53:19 57:9 59:7,21 60:8
building [8] 12:12 65:2 83:19 204:14,21,24 205:1 257:25
built [5] 41:21,21 116:1 125:6 136:19
Bull [1] 71:24
bullet [2] 106:19 132:18
bulletin [1] 91:24
bulletins [1] 132:24
bump [1] 91:11
buoy [2] 189:17 231:6
burdensome [1] 133:20
Burt [1] 261:21
business [55] 2:4,5 8:5,7 9:14,15 13:1,12,18 18:1 18:10,11,23 47:14 48:4 48:19,23 49:25 53:23 54:3,13,19 55:13,21 56:2 58:25 75:24 86:15 95:13 104:19 109:4,11 112:21 116:16 127:23 130:11,25 131:5 137:8 142:2,7 144:1,23 146:24 147:9 148:15 160:5,6 162:19 165:24 166:3,3 167:19 186:9 228:3
button [1] 4:12

-C-

C [1] 95:20
C-NLOPB [19] 2:16 35:9 50:20 69:18,20 90:4 95:23 96:9 97:12,15,19 100:11 118:1 137:12 174:7 179:8 227:21 239:1 261:22
CADOR [1] 133:2
cage [2] 29:22,24
Calgary [2] 9:19 13:15
calls [1] 125:15
calm [1] 161:10
camera [1] 79:7
Canada [43] 7:3 9:17 10:12 16:3,13,23 17:1 17:18 18:22 19:3 20:2 41:18 42:1,10,11 44:24 83:10 95:21 96:6,7 98:4 98:7 100:12,23 102:11 103:24 106:7 129:2 131:24 133:3,9 168:7,17 169:20 170:15 175:7,11 175:19 227:21 234:12 235:7 258:7 267:1
Canada's [3] 11:7 17:20 17:25
Canada-Newfoundland [1] 13:20
Canada/Suncor [1] 125:18
Canadian [6] 14:5 95:22 96:1 176:4 184:5 227:19
candid [1] 229:23
cannot [1] 62:8
capabilities [1] 228:10
capability [8] 18:5 51:1 51:12 53:3 119:15,18 185:25 232:24
capacity [5] 24:22 34:14 34:16 73:9 233:23
CAPP [11] 14:6 75:18 174:3,21,22 175:1,5,7 175:13 176:18 237:9
capture [1] 65:16
card [15] 61:5 63:9,13 67:16 80:1,8,11,20,23 82:6,7 85:23 93:7 241:11 241:12
cards [4] 80:6 81:23,24 140:9
care [2] 139:11 259:6
career [5] 11:13 12:7,15 67:14 175:21
cargo [4] 218:14 222:13 238:2 258:21
carriage [1] 238:1
carrier [1] 119:25
Carron [1] 31:17
carrots [3] 94:20,24 95:3
carry [4] 59:13,25 80:14 229:19
carrying [1] 133:7
cascade [1] 88:21
cascaded [1] 143:23
case [14] 28:24 34:19 67:15 96:13 100:21 104:5 105:2 108:10 117:18 169:19 186:19 194:23 214:8 251:13
cases [5] 109:19 146:15 208:5,7 214:17
categories [1] 50:3
causal [3] 135:16,22 136:10
caution [1] 33:6
centimetres [1] 267:4
centre [8] 26:23 184:8 196:1 199:3,4 201:13 204:19 257:8
CEO [5] 47:1,3 85:10 152:6 261:22
CEP [1] 170:21
certain [8] 113:13 160:25 161:8 165:16 187:11,14 219:13 225:25
certainly [13] 25:21 66:15 68:21 83:7 90:22 94:3 105:9 121:25 131:11 137:20 139:3 227:1 267:6
certificate [2] 234:3 268:1
certification [15] 96:10 96:14,16 106:10 107:21 108:18 168:12,22 169:20 170:13 178:16 233:19 234:1 250:19 251:1
certifications [1] 249:7
certified [5] 221:5,8 228:8 250:22 251:17
certify [1] 268:2
certifying [8] 96:12 106:5 228:12 235:20 236:3,14,22 238:24
CGSB [2] 249:10 250:16
CGSP [1] 252:7
chain [4] 27:6 127:17 146:16 148:19
chains [1] 27:7
chairs [2] 147:7,12
challenge [2] 101:18,22
challenges [1] 152:11
champion [2] 83:4,15
champions [2] 82:23,25
chance [1] 266:14
change [15] 32:17 56:20 56:22,23 157:25 161:6 162:8,22 167:10,11 221:1 221:17 226:14 227:7 255:19
changed [3] 90:22 219:16 266:10
changes [4] 123:13,16 161:7 166:18
changing [3] 94:5 123:17,18
characteristic [1] 190:9
characteristics [6] 191:23 192:2,8,9,18,22
characterize [2] 228:21 230:12
charge [3] 151:21 168:9 168:13
chart [8] 145:22 147:14 147:16,21 149:8 165:19 207:15 209:14
charter [3] 120:10,20 131:22
charterer-specific [1] 120:3
charts [2] 205:17 209:9
check [1] 75:1
checking [1] 63:17
checklist [1] 80:10
cheese [1] 251:5
Chevron [1] 21:18
Chief [1] 46:16
children [1] 8:17
chin [1] 245:22
chip [4] 210:9 211:24 212:7 214:12
choose [1] 49:3
chore [1] 94:14
chose [1] 250:11
chosen [1] 1:18
chunk [1] 49:22
Cindy [1] 268:11
circulate [2] 181:1,2
circulation [1] 244:3
circumstance [3] 89:9 130:15 210:18
circumstances [3] 76:6 226:1 229:24
civil [1] 133:1

clarification [1] 113:20
clarify [1] 155:18
clarity [1] 76:4
class [3] 2:14 97:14 106:5
classed [1] 24:22
classification [9] 96:4 96:19,23 97:11 98:2 195:6,19,22 196:3
classified [1] 98:1
classroom [1] 173:13
clause [1] 120:9
clauses [2] 119:10,12
clear [9] 2:9 36:7 47:12 82:16 116:13 120:8 155:19 176:2 226:16
clearly [14] 18:12 35:20 57:17 58:25 112:18 120:14 142:3 153:22 216:2 251:3,13 252:11 252:13 253:10
click [2] 55:25 56:3
clock [1] 217:8
close [24] 22:20 23:5,7 23:12 28:1 34:13 77:13 112:20 127:25 128:14,25 129:5,22 130:1,4 139:13 149:16 151:6 179:13 187:6 188:13 221:24 238:14 260:1
closed [2] 77:6 129:17
closely [2] 45:5 127:22
closer [1] 187:13
closest [1] 127:15
closing [1] 129:18
closure [2] 68:3 103:2
cluing [1] 252:24
co-op [1] 9:7
co-venture [1] 127:6
co-venturer [1] 126:14
co-worker [2] 66:25 67:6
co-workers [1] 67:1
coast [33] 6:3,6 7:24 12:1 12:18,25 13:9 16:12,13 18:25 19:2 20:2 25:22 31:15 48:5 53:16 55:6 56:17 70:20 118:23 131:1 137:18 143:13 146:25 147:4,6,19,22 149:7,9 175:18 176:4 184:5
codes [2] 143:22 144:2
colleagues [5] 6:10 7:12 12:4 14:10,13
collective [1] 6:25
collectively [2] 105:12 266:3
Collin's [1] 241:9
Collins [3] 244:13 245:5 248:3
colour [1] 165:19
combination [5] 122:14 132:14 173:1 216:13 235:16
combine [1] 45:4
comfort [2] 215:8 249:21
comfortable [5] 68:6 69:2 85:19 110:4 250:14
coming [19] 4:13 28:12 28:14 30:3 57:3 86:24 113:15 129:1 145:22 198:22 207:5 221:18 226:17 238:10 241:18 248:16 254:14 257:15 266:25
command [15] 194:4,12 194:13,20,24 195:1,2,15 198:24 201:2,21 203:10 204:12,19 257:8
commandeered [1] 204:9
commander [14] 196:24 197:6 199:5,6,10,17 200:1,10,21 201:3,4,13 202:5 258:6
commenced [4] 20:12 20:17,18 26:10
commencement [1] 112:13
commencing [2] 16:16 74:20
comment [7] 49:1 68:13 69:15 152:9 153:17 175:13 254:21
comments [4] 1:8 66:19 151:5 233:10
Commerce [1] 12:4
commercial [4] 17:9 113:1 119:12 211:10
commercially [1] 136:4
Commission [3] 6:19 265:1,8
Commissioner [43] 1:2 1:6 4:1,15 5:15,22 6:22 7:13,20 11:22 15:1,5,6 23:10,16,20 28:23 30:9 30:14,22 60:22 61:1 73:6 79:6,16 120:8 148:20 149:21 155:10,13 231:18 248:24 251:21 253:5 257:2 264:22 265:16,19 265:25 266:10,12,19 267:12
commit [1] 14:18
commitment [6] 7:11 46:22 81:24 92:20 264:10 264:17
commitments [2] 221:1 224:4
committed [2] 7:4 265:4
committee [32] 13:21 13:22 18:19 70:22,24 71:23 72:2,7,8,21,24 73:23 75:8,15,16 84:11 103:16 240:9 242:12,14 242:24 245:11,13 246:9 246:12,25 247:1,5,8 249:3,12 252:4
committees [12] 64:11 72:9 73:16 74:13 84:6 84:13 103:8 241:17 243:6 254:2,9 260:25
commodity [1] 88:12
common [9] 30:7 31:13 49:24 82:18 84:17 86:7 128:12 144:25 179:24
commonly [1] 30:25
communicate [6] 51:22 65:5 90:23 141:23 150:8 220:21
communicated [3] 77:9 168:1 253:23
communicates [1] 115:7
communication [26] 44:25 61:11 65:3 68:4 68:11 82:15,20 83:23 85:22 96:20 100:8 183:19 183:22,24 205:24 208:25 213:9,11 237:4 247:3 249:3 258:17 260:22 264:11,15,17
communications [10] 83:18 100:10 195:5 207:1 237:21 247:8 249:13 261:4 262:13,24
communicators [2] 82:23,25
community [1] 220:20
companies [14] 1:15,18 2:14 3:14 58:16 87:14 87:21 126:15 170:5 206:16 258:4,5 259:19 263:9
company [30] 16:17 17:7 17:15,16,17,20 18:18,21 20:7 32:15 43:21 48:22 49:11 58:12 59:5 91:5 91:15 126:21 141:21 153:8 165:9 166:2 175:23 176:10 200:22 219:2,4 225:20 230:22 260:6
company's [5] 36:14 41:22 43:6 101:12 226:19
compare [4] 2:25 35:21 88:25 190:23
Compared [1] 58:16
comparing [3] 2:9 43:11 152:2
compete [1] 17:23
competency [3] 172:18 173:9,10
competent [2] 44:1 217:24
competitively [1] 117:20
competitors [2] 119:13 119:14
complaint [1] 100:19
complete [6] 81:13 112:16 129:11 130:3 172:3 177:18
completed [8] 81:6 90:3 112:9 129:9 159:23 178:4 178:7 227:8
completely [2] 160:24 184:23
completes [1] 235:18
completion [1] 8:2
completions [2] 7:23 37:5
complex [2] 107:7 152:7
complexity [1] 6:23
compliance [18] 50:14 51:23 52:3 53:20,25 95:10 96:25 97:7,9,14 102:15 125:11 143:20 144:1 146:20 169:7 174:7 176:21
components [2] 40:11 143:2
comprehensive [1] 100:22
computer [1] 24:4
computers [1] 80:22
concept [6] 20:21 38:11 38:15 162:21 196:19 255:17
concepts [1] 160:11
concern [10] 69:9,22 104:14 127:11 150:3,4,7 150:8 215:9 246:17
concerned [5] 200:23 201:20 211:18 213:21,25
concerns [17] 68:16 71:2 103:9 118:3 130:9 153:1 240:12,14 242:18 243:5 245:8 247:4,13,21,25 254:11,13
concludes [3] 151:10 171:12 239:7
conclusion [4] 117:17 134:3 226:20 264:22
condense [2] 172:1 173:17
condition [4] 61:18 78:17 150:21 162:23
conditions [19] 26:25 62:11 71:3 84:23 102:17 116:1 191:6,25 193:1 218:17 225:24 227:5 228:18,20,21 229:4 230:12 237:19 262:22
conduct [5] 99:14 103:25 133:21 225:23 243:24
conducted [8] 38:25 100:11 103:20 106:8 225:24 227:20 252:3 261:16
conducting [1] 65:1
conducts [3] 102:12 103:18 235:6
confidential [1] 3:12
conjunction [2] 24:2 261:21
connect [1] 24:6
connected [1] 22:1
ConocoPhillips [1] 31:14
consequence [2] 159:24 164:20
consequences [3] 160:16,17 256:24
conservation [1] 36:19
consider [6] 8:18 92:23 161:1,17 191:12 227:8
considerable [1] 14:19
consideration [2] 192:12 212:14
considerations [5] 124:23 226:2,5,11 237:22
considered [3] 11:8 221:14 224:23
considering [1] 264:1
consists [1] 132:11
constantly [1] 94:15
construction [3] 61:22 96:3,11
consult [3] 125:2 212:19 212:20
consultant [1] 117:23
consultants [1] 216:9
consultation [4] 206:2 206:4,5 222:21
contact [1] 92:6
contained [1] 156:10
containers [1] 218:4
contempt [1] 93:16
content [4] 158:5 232:5 232:11,20
context [4] 1:11 41:3 52:8 161:7
contingency [9] 40:22 98:18 182:4,7,14,17 183:8 185:22 205:10
continue [11] 14:10,16 14:18,22 39:1 120:6 122:2 134:1 264:10,14 265:11
continued [2] 26:11 260:16
continues [1] 249:4
continuing [3] 14:24 254:11,13
continuous [7] 14:19 18:6 122:7 135:13 143:25 146:23 160:5
continuously [1] 6:16
contract [32] 98:1 112:13 113:2,21 114:15 115:1 116:1,4,4,8,12,18 117:3 117:11,20 118:3,7,14 119:6 120:9,10,15 121:8 121:16,23 124:7 125:9 125:15,16 127:16 131:13 131:22
contracted [5] 87:13 106:4 112:21 113:6 228:7
contracting [3] 89:22 113:6,10
contractor [20] 45:3 50:24 51:11 69:18 86:3 88:21,23 98:6 110:21 111:17,22 112:3 114:20 115:11 116:9,19 124:15 124:19 128:2 169:7
contractor's [2] 82:4 169:11

contractors [21] 8:6 72:15 80:4 85:24 86:18 86:22 112:4,11 116:6 122:18 128:13 134:20 135:3 144:12 164:2 169:3 202:10,14 229:15,20 261:7
contracts [3] 127:23 169:6 170:7
contrast [2] 2:25 35:22
contrasting [2] 2:9 152:2
contribute [2] 72:11 81:22
contributor [1] 245:21
control [9] 46:8 47:10 133:4 157:16,22,24 190:5 235:12 238:3
controlling [1] 160:2
controls [1] 169:3
coordination [6] 184:8 194:6 195:7 196:1 199:3 219:1
copies [1] 91:23
copy [1] 254:6
Cord [2] 252:10 254:6
core [2] 59:1 112:18
corners [1] 27:7
corporate [15] 46:21 47:23 48:12 50:12 53:24 54:2,12 135:6 137:4 143:17 147:8 149:22,25 152:5 165:8
corporately [2] 54:12 149:12
corporation [2] 16:15 147:10
correct [49] 5:18 21:13 27:22 28:22 30:13 35:6 41:7,9,14 43:17 44:18 47:7 48:17 49:16 50:5 56:22 58:19 71:19 79:13 97:21 100:8 122:20 140:24 141:1 144:19 145:11,21 148:7 154:11 155:4 156:15 157:3 158:21 159:8 162:11 165:23 179:20 185:17 186:21 220:6 225:12 235:5 236:20 239:13 253:17 257:15 260:16 262:10 268:3
corrected [1] 88:16
corrective [3] 65:11 77:6 135:8
correctly [3] 77:5 228:22 230:13
Cougar [56] 6:8 75:1 80:6 87:16 98:6 104:16 105:2,12 114:5 117:3,11 117:12,24 118:4,25 119:14 125:19 126:1,5 127:5,20 130:12,15,16 133:6 138:25 139:4 168:3 168:4 169:19,25 170:5,5 184:14 191:17 192:7,11 192:15 206:1,9,9 209:12 209:14 214:11,14 218:10 219:18 228:24 230:8,16 235:18,20 236:15 244:17 245:1 261:21
Cougar's [6] 105:8 168:6,23 169:22 185:11 260:20
council [2] 147:11,13
counsel [1] 170:21
counsellor [1] 214:24
counsellors [2] 207:12 215:17
couple [10] 1:7 25:15 32:7 66:6 95:18 106:20 116:20 126:11 151:16 196:8
course [8] 1:12 3:15 10:22 52:7 123:25 173:17 246:9 260:21
courses [1] 173:16
cover [12] 13:4 16:2 33:1 36:3 66:12 98:18 116:2 158:3 174:20 175:1 203:21 239:13
coverage [1] 200:20
covered [23] 15:21 21:13 44:15 62:16 95:24 98:22 120:15,15 157:1,3 171:21 172:20 183:7 184:23 194:17 217:16,16 221:21 226:10 237:9 255:22 256:4,7
covers [6] 31:4 61:16 110:8 157:5 182:19 194:20
craft [1] 221:3
crane [4] 161:9,22 162:2 237:2
cranes [1] 218:2
crash [2] 125:24 142:6
create [4] 51:17 142:14 159:22 218:6
created [1] 99:15
creates [2] 61:6 86:21
crew [9] 80:21 85:9 221:1 221:17 222:6 226:14 227:7 228:12 233:20
crews [2] 218:2 221:4
criteria [3] 115:5 165:10 230:11
critical [6] 40:12 105:16 128:6 157:17 161:13 250:4
criticality [2] 112:12 123:21
cross [1] 115:16
cross-functional [1] 112:15
Crown [1] 16:15
crude [2] 21:24 25:1
culture [12] 18:16 44:9 59:7,21 60:9 69:7 71:12 83:20 92:19,19 93:9,12
curiosity [1] 179:25
current [6] 7:25 11:4 33:9 55:12,19 99:18
cut [3] 70:9 91:10 244:7
cycle [2] 33:17 68:17

-D-

d'Arc [1] 19:22
daily [7] 79:4 83:24 100:16 167:9,20 219:21 228:14
damage [3] 76:3,7 78:13
dangerous [2] 158:2 238:2
darkness [3] 10:2 224:20 224:25
dashboard [1] 210:12
data [6] 183:25 186:10 228:20,24 231:7 248:16
database [12] 57:25 58:3 65:9 66:10 77:8,11 129:2 129:2,8 136:19 177:14 177:17
date [6] 20:8 129:5,10,12 129:14,15
dated [2] 175:12 268:9
dates [1] 124:18
day-to-day [5] 148:12 149:7 167:23 171:14 265:6
daylight [1] 227:2
days [11] 71:24 106:16 142:6 178:14,17 179:2,4 186:16 221:19 226:17 229:1
deal [13] 66:20 69:25 72:13 73:16,20 111:5 158:10,13 159:3 181:10 195:18 217:1 256:23
dealing [2] 86:8 142:5
deals [2] 74:13 157:4
dealt [4] 231:24 232:24 233:13 256:21
debriefing [1] 260:8
December [2] 246:10 252:16
decide [5] 89:25 91:18 122:10 129:25 213:5
decided [3] 9:4 150:22 212:4
decides [2] 133:20 210:14
decision [9] 124:6 198:18 211:4 212:5,15 228:22 228:25 230:10,18
decisions [9] 160:25 167:20 168:4 197:14 198:16 208:11 211:25 212:13 229:3
deck [2] 237:5,8
declared [1] 222:15
declining [1] 34:15
dedicated [5] 153:9 164:3 204:6,10 222:12
deem [1] 130:3
deep [1] 198:4
defect [1] 133:1
Defence [1] 184:5
define [4] 48:2,24 57:17 65:7
defined [6] 50:6 53:14 57:8,13 134:12 140:4
defines [1] 47:9
definitely [4] 101:17 105:14 193:11 220:19
definition [1] 62:15
definitions [1] 195:23
degree [4] 8:15 12:4 71:4 201:6
degrees [4] 10:3 45:23 188:17,18
delegated [4] 104:1,3,4 106:6
deliver [7] 49:10 53:10 63:1 94:15 146:22 217:25 228:6
delivered [1] 144:3
delivering [5] 8:7 54:20 62:4 86:1 227:25
delivery [3] 11:16 86:15 144:7
demand [1] 259:6
demands [1] 258:16
demonstrate [1] 18:5
demonstrated [6] 92:21 109:5,6,12,18 252:13
demonstrates [1] 39:21
depart [1] 191:4
department [5] 84:3 114:21 122:23 131:20 184:4
departments [3] 72:5 85:1 113:2
departure [5] 187:21 224:7 237:23 255:21 256:10
depend [1] 224:2
depending [9] 27:4 106:10 113:1 161:8 164:11 165:18 167:6 219:14 220:1
depict [1] 45:23
depicted [2] 22:9 205:25
depicts [2] 100:10 205:13
depth [1] 27:12
depths [1] 27:10
derrick [3] 26:22 27:20 28:11
derricks [1] 192:11
descending [1] 54:5
describe [5] 37:18 38:5 87:19 134:8 228:18
described [5] 36:21 38:17 65:4 117:22 146:6
describes [9] 36:12,15 40:8,13 157:11,20 172:16 194:6 232:7
describing [1] 41:24
design [12] 16:5 33:13 38:12,16 42:17 96:3,10 98:20 157:14 162:21 166:18 248:10
designated [1] 218:24
designed [5] 33:14 40:9 65:16 92:22 134:25
designs [1] 237:13
desire [1] 126:17
Det [1] 236:18
detail [26] 23:24 24:14 32:24 37:3,8 39:20 43:8 47:25 66:12 89:5 95:17 95:24,25 102:24 110:10 113:9,24 158:4,15 159:3 184:24 198:4 216:16 232:9 244:16 248:6
detailed [5] 172:25 195:2 242:3 248:2,7
details [1] 183:17
deteriorates [1] 161:24
determine [7] 159:18 163:17 168:13 173:7 191:18,23 206:4
determines [3] 197:19 206:2 239:5
determining [2] 192:17 238:25
detriments [1] 152:10
develop [4] 52:25 129:7 146:17 262:22
developed [13] 19:21,23 39:3,6 54:19 61:21,25 80:2 94:22 159:19 175:9 182:4 262:7
development [28] 11:3 12:17 16:19 17:10 19:17 19:20,23 20:12,16,21 21:16 22:5 34:12 35:10 37:23 38:6,9,21 40:1 54:2 124:24 128:10 159:17 172:17 173:9,11 176:19 196:19
developments [1] 20:8
device [1] 231:9
devices [1] 218:4
diagram [3] 22:5,9 37:21
diameter [3] 180:21 190:1 233:25
diced [1] 90:15
dichotomy [1] 69:5
dictated [1] 262:15
difference [6] 36:10 45:12 108:2 160:20 215:15 264:5
differences [5] 2:3,7 3:1 36:7 90:11
different [41] 2:6 29:6 35:25 43:1 49:22 52:8 58:17 62:23 76:6 78:25 84:1 85:14 87:1,13 90:15 94:5 98:23 102:8 104:13 120:18,22 121:17 165:2 166:4 170:7,13,15 174:12 176:1 181:9 189:24 190:8 191:3 192:2,5 207:24

211:21 231:8 237:14,19 257:2
differently [4] 36:4 49:23 57:14 61:7
difficult [1] 263:18
difficulty [3] 139:10 186:25 267:9
diligence [9] 14:1 87:22 102:2 126:24 131:19 146:8 253:18,21 256:3
diligent [1] 250:5
diligently [1] 103:5
dimensions [1] 27:16
direct [5] 103:11 147:21 148:1 219:18 257:5
directed [4] 58:17 104:18 187:9 222:20
direction [7] 87:2,3 148:12,13 149:8 188:22 190:2
directives [1] 132:25
directly [14] 47:3 69:20 148:4 152:19 154:25 158:5 165:24 168:2 202:4 205:25 219:21 220:21 248:1 259:20
director [4] 13:10 149:5 150:16 151:1
directors [5] 18:19 47:13 47:18 149:16,23
directs [1] 227:4
discipline [2] 84:2,3
disciplines [2] 84:5 85:1
disconnect [2] 180:16 194:21
disconnectable [2] 24:21 194:22
discovered [1] 19:12
Discoveries [2] 268:12 268:14
discreet [3] 29:6 41:6,17
discuss [5] 86:4 103:17 153:4 169:25 255:10
discussed [4] 146:12 162:5 218:15 228:2
discussion [7] 67:8 134:12 152:1 211:23 235:15 247:2 263:21
discussions [4] 60:17 241:5 246:8 248:8
disembark [1] 260:13
dissatisfaction [1] 254:14
dissemination [2] 137:22 247:3
distance [4] 22:21 23:9 24:6,9
distinct [2] 95:20 177:21
distribute [2] 65:15 91:22
distribution [2] 73:24 91:3
ditches [1] 141:7
ditching [1] 257:9
diverted [1] 104:23
diverting [1] 258:21
divided [1] 40:5
division [3] 16:21 170:16 170:17
DNV [4] 98:1 236:6,13 236:17
document [12] 37:6 41:6 55:18 56:4 70:23 90:3 115:2,7 120:21 129:13 247:20 250:1
documentation [4] 42:4 56:24 98:13 101:2
documentations [1] 100:5
documented [2] 192:21 230:21
documents [14] 32:18 32:21 33:1 37:2 40:4 54:13,16 55:7,10,16 70:19 100:3 119:8 120:13
doesn't [17] 24:6 48:4 71:14 88:2,4 97:18 109:14 139:21 140:8 141:6 142:17 144:25 163:6 169:15 188:5 200:1 219:25
domain [1] 67:25
don [4] 244:19,24,25 246:18
done [18] 24:4 38:10 54:20 60:7 62:8,24 104:2 104:12 107:17 173:18 175:17,20 212:25 234:15 244:15 248:6,25 254:2
doors [1] 85:17
dot [1] 28:9
dotted [2] 147:20 148:11
double [1] 38:17
doubled [1] 24:25
doubt [1] 73:13
down [28] 1:8 11:10 25:5 38:3 47:7,20,22 48:17 54:5,7 81:12 94:9 119:17 125:13 138:11 154:18 172:1 173:17 177:18 178:6 193:21 201:9,14 209:14 237:24 251:18 261:13 262:6
downstream [2] 16:20 48:12
downwind [1] 188:3
draft [1] 120:13
draw [2] 37:20 147:19
drawn [1] 22:18
drill [12] 8:21 22:23 27:2 27:11 31:14 43:7 51:25 52:7 55:21,25 94:9 154:17
drilled [4] 10:20 19:10 19:12 21:24
drilling [48] 6:2 7:23 8:1 8:2,5,8 9:3,11,15,18 10:6 10:7,16,25 11:2,4 19:15 21:20,21 22:19,22 25:18 26:21 27:19 31:5 33:10 33:19 34:1,2 37:5 39:19 48:10 52:10 58:22 67:17 72:14 88:25 89:22 90:10 95:19 99:19 108:10 127:3 145:16 185:4 220:3 221:6 222:11
drills [1] 182:20
drive [5] 33:25 64:3 92:5 124:17 163:20
driven [1] 47:20
drives [1] 165:8
due [8] 14:1 102:2 126:24 131:18 146:8 242:25 253:17,20
duel [1] 251:17
duplication [2] 99:15 107:19
duration [2] 106:15 116:11
during [23] 9:7 19:15 26:14 32:22 34:1 38:15 39:2 61:22 80:12 98:13 103:5 115:16 116:22 123:25 157:7 172:20,24 190:17,22 227:2 237:7 239:18 261:8
duties [1] 194:15
duty [1] 221:19
DVDs [1] 60:15
dwell [1] 217:17
dynamically [1] 23:25

-E-

e-mail [2] 90:21 91:1
E452 [5] 240:16 242:18 252:1,14 253:9
EAP [1] 259:22
Earle [4] 170:20 239:20 241:8 266:9
earliest [1] 224:8
early [12] 10:1 11:5 12:23 19:13 38:20 142:6 147:16 159:17 208:23 220:6 225:2 254:20
easier [1] 202:25
easiest [1] 70:2
easily [1] 170:24
east [32] 6:3,6 7:4,23 12:1 12:18,25 13:9 16:12,13 18:24 19:2 20:2 25:22 48:5 53:16 55:6 56:16 70:20 118:22 131:1 137:18 143:13 146:25 147:3,6,18,22 149:7,9 175:18 176:3
easy [4] 32:17 55:20 79:23 80:20
eating [1] 94:10
edge [3] 76:11 187:24 222:2
educate [1] 10:18
educational [1] 71:6
effect [5] 6:11 163:13,15 198:23 253:4
effective [5] 44:2 75:24 83:18 84:13 128:21
effectively [2] 65:5 221:2
effectiveness [3] 115:18 115:20 137:5
effects [2] 163:2 237:16
effort [6] 63:6 72:11 82:19 91:25 99:15 208:24
efforts [3] 14:19 78:22 105:22
Egypt [2] 10:5,13
EH&S [4] 14:7 55:24 56:2 149:15
eight [7] 24:18 153:24 178:14 179:2,4 199:21 238:10
either [19] 26:1 28:12,14 29:10,25 94:20 121:21 161:13 165:24 166:6 171:3,21 175:2 179:5 184:4,17 214:12 233:3 254:2
electrical [3] 107:2 167:13 235:11
electronic [6] 90:21,23 91:21 177:4 189:18 231:7
element [21] 10:23 50:21 50:22,22,23,24,25 51:2 51:3,3,5,19 52:11,20,23 53:3,5,13,18 61:14,15
elements [13] 49:13,18 50:6,9,16 53:1,7 90:14 95:15 157:13,18,21 160:8
elevations [1] 189:21
eliminate [2] 59:3 246:6
elsewhere [3] 15:9 82:2 248:25
email [1] 247:11
embedded [3] 52:20 111:18 160:6
emergency [36] 13:6 40:22,25 51:4,14 146:10 173:1 182:4,8,13,20 183:12,18 185:24 186:19 194:1,5,10,17 195:5,7 195:10,16 196:10,13 197:7 198:3,10 205:10 209:21 211:3 213:5 221:7 222:15 235:16 237:7
emerging [1] 132:22
employed [2] 85:25 234:19
employee [24] 44:25 51:1,12 53:3 60:15 61:10 61:16 69:18 77:9 138:16 140:8,16 172:17 177:3 202:2 206:24 207:11 214:23 215:3,13,24 255:23 256:13 258:13
employee's [1] 207:3
employees [37] 49:6 55:8,9 56:12 57:5,8 58:7 58:20 59:16 66:11,15,22 70:1 74:19 77:10,15,17 82:3 112:7 144:12 173:11 174:12 178:14 179:10 202:9,10,14 208:25 212:1 214:22 215:20,23 229:14 229:15,18,25 230:1
Employers [1] 261:6
employment [1] 61:19
en [1] 257:9
enable [1] 137:3
enclosed [1] 26:23
encourage [10] 55:9 60:8 67:3 78:21 83:18 85:12 88:4 92:10,16 159:14
encouraged [4] 63:19 81:9 84:12 92:2
encourages [1] 91:2
end [6] 53:11 83:12,25 140:15 141:5 246:12
ended [2] 117:24 248:12
ending [1] 74:21
energy [16] 5:23 11:25 13:14 15:25 16:3 17:12 17:16,20 18:24 21:17 26:15,16 100:11 204:13 261:4 264:23
enforcing [1] 227:22
engage [1] 87:5
engaged [2] 199:11 263:3
engagement [2] 59:6 153:12
engagements [1] 84:16
engineer [4] 9:12,19 10:6,17
engineering [5] 8:15 9:5 9:7 38:12 157:24
engineers [1] 132:12
enhancing [1] 71:25
enjoy [1] 64:4
enormous [2] 205:1 250:18
ensure [34] 39:21 40:17 50:14 51:22 58:21 64:19 89:1,24 91:5 92:7 112:6 112:8,17 115:25 116:12 118:1 128:25 135:4 143:19,20 144:10 146:19 146:19 159:20 169:5 200:17 207:2 208:24 211:2,3 219:19 244:18 253:19 262:25
ensured [1] 258:17
ensures [1] 77:2
ensuring [4] 64:11 68:2 146:4 201:10
enter [2] 12:5 77:11
entered [2] 4:2 77:23
enters [1] 178:7
entire [4] 46:13 85:7,9 243:20
entirely [2] 52:8 267:11
entirety [1] 156:4
entitled [1] 73:16
entries [1] 77:25
environment [36] 6:5 11:24 12:24 13:5,11,13

14:17 39:23 43:23 46:11 46:20 89:20 112:22 115:18 119:3 139:11 143:15 144:2,13 146:2,9 146:25 148:18 149:6,10 149:14,25 150:16 151:1 160:19 173:3 176:6 182:7 201:24 220:25 267:1
environmental [11] 18:18 26:24 39:7 50:25 53:8 76:3 78:13 95:11 102:19 143:21 153:10
environmentally [5] 40:12 86:2 112:9 145:15 157:17
environments [1] 27:9
equipment [32] 30:19 40:9 44:4 50:23 53:5 76:8 92:22 93:1 101:25 106:12 107:4 109:2 120:1 157:6,9,12,12 158:1,8 161:15 163:5,12,14 189:15,18,19 191:9 206:13 217:12 235:17 237:20 259:15
equipped [1] 121:7
era [1] 33:16
escalate [1] 198:17
escape [4] 25:7,9 38:19 75:19
especially [3] 80:14 116:7 263:25
essence [1] 95:13
essential [4] 2:17 3:21 82:17 122:7
essentially [7] 50:11 53:17 113:9 177:4 207:6 223:14,16
establish [4] 38:10 52:15 112:14 115:17
established [7] 39:5 40:14,20 43:5 46:16 143:12 233:2
establishing [1] 64:13
evacuate [1] 206:6
evacuation [10] 60:10 75:19 205:15 206:22 207:9,25 208:1,6,12 222:16
evaluating [2] 80:13 81:18
evaluation [6] 113:20 114:12 115:6 117:23 161:4 221:15
evening [2] 224:1 225:9
event [61] 25:1,7 40:24 45:7 51:5,14 57:25 58:2 60:12 65:20 75:23 76:23 77:3 91:8,13 102:20 107:20 124:3 134:4,19 135:1,12 137:2 138:10 138:18 140:2,15 141:4,8 141:15,18 142:2,14,18 146:11 160:16 166:16 167:24 183:18 188:4,8 194:21 197:6 198:11 199:2,4,7 200:24 201:12 201:15 202:7 204:14,16 205:14 206:19 216:14 221:6 262:16,19 266:25 267:7
events [16] 57:11 65:17 75:25 77:23 78:13 82:10 84:20 134:9,11,14 135:4 135:9 182:5 196:4 263:20 265:5
everybody [10] 30:16 55:20 56:16 84:10 87:2 105:8 123:7 152:6 203:7 248:7
everywhere [1] 175:6
evidence [7] 104:14 155:18 156:17 174:22 232:10 241:9 262:4
evidentially [1] 117:12
exact [5] 114:9 117:21 165:4 188:18 189:15
exactly [2] 42:12 183:5
examination [5] 5:13 71:1 235:8,11 265:22
examining [1] 6:22
example [52] 18:3 37:4 52:11 53:2,9 54:15 60:7 73:22 76:10,13,18 79:7 80:12 94:7 101:22 107:14 108:4,14 113:12 119:15 123:24 124:5,18 126:9 127:2 129:10 137:25 138:15 139:22 161:7 162:9 163:3 167:10 168:16 174:11 175:19 179:15 180:15 190:15 194:13 195:23,24 199:2 202:1 208:1 210:8 212:19 223:10 228:18 229:5 254:4 255:24
examples [6] 1:15 38:13 54:18 85:23 86:16 148:17
exceed [1] 115:9
excellence [1] 17:21
exception [1] 225:25
excerpt [2] 46:18 240:8
excess [1] 261:11
exchange [1] 92:8
exclusive [1] 49:14
exclusively [1] 114:19
Excuse [1] 25:17
executed [1] 137:1
execution [1] 113:22
executive [3] 46:17 47:14 200:2
exemplifies [2] 76:22 142:10
exercise [2] 94:11 193:4
exercises [1] 182:19
exhibit [9] 3:5,17 58:7 117:1,2 119:8 232:14 255:3,4
exhibits [5] 3:5,8,8,12 3:19
exist [1] 54:12
existing [2] 117:16 259:4
exists [2] 68:5 230:8
expand [1] 218:22
expansion [1] 34:12
expect [9] 52:2 58:7,20 61:8 78:20 80:3 82:2 118:7 247:5
expectation [5] 78:17 80:25 81:21 86:18 105:20
expectations [27] 18:12 44:5 48:2 49:6 50:10,21 51:17,21 52:1 54:2 57:7 82:16 86:8 87:21 89:2 93:3 115:7 116:5,11,15 118:20 135:2 137:13 143:16,23 174:12 247:7
expected [2] 82:22 153:20
experience [10] 6:25 7:14,18 82:19 96:22 118:24 132:13,16,17 175:11
experienced [1] 66:21
experiences [2] 209:4 210:3
expert [2] 114:11 228:5
expertise [8] 117:24 126:23 127:7 131:8,13 133:10 201:6 203:14
experts [2] 114:15 201:24
explain [5] 68:13 117:8 148:21 180:3 214:11
explained [2] 216:17 241:11
explanation [1] 214:14
explanations [1] 214:2
exploration [6] 16:19 19:5,14,15 33:9 48:11
explored [1] 110:14
exposed [2] 187:23,24
exposure [3] 60:13 75:10 80:2
expressed [2] 242:17 245:9
expression [21] 29:15 49:13 52:7 57:22 79:23 81:14 83:4 87:17 93:15 94:18 101:7,11 113:11 120:11 139:9,10,18 140:21 144:15 166:21 224:14
expressions [4] 43:11 58:17 179:24 254:13
extend [4] 59:9,9 60:6 129:12
extended [2] 109:9 129:14
extension [1] 110:5
extensive [1] 260:22
extent [8] 36:24 60:19 94:22,24 212:14,17 243:10,25
external [1] 45:2
extra [1] 256:3
extremely [3] 27:8 101:21 190:5
Exxon [2] 88:16 128:9
Exxon's [1] 126:25
ExxonMobil [5] 21:9 21:11,17 89:13 126:22
eye [1] 217:7
eyes [1] 79:2

-F-

face [12] 92:6,6 105:8 116:21,21 242:25 243:16 245:8,19,23 246:7 247:23
facial [2] 242:25 243:16
facilitated [1] 73:23
facilitates [1] 63:3
facilities [26] 16:22,25 39:5 40:8 46:11 87:13 102:14 107:12 157:5,11 157:12 185:6 186:2,18 186:24 193:3 204:15,16 204:17 218:23 223:23 226:22 233:22 234:14 252:5 261:3
facility [33] 20:1 21:20 24:17,20 25:5 26:20 27:5 29:18 38:7,18 65:14 82:4 82:7 102:22 103:8 139:7 146:19 171:6 183:21 192:14 198:12 205:15 206:1,23 207:25 209:3 209:18 210:2 223:24 238:17,19 252:10 260:20
fact [34] 6:14 7:6 35:12 38:5,17 42:16 55:9 57:4 69:2 78:21 83:1 88:15 89:8 91:7 92:1 108:5 119:13 126:13 128:19 130:21 131:17 148:11 170:20,22 171:24 177:25 208:16 215:3,18 242:13 244:1 248:4 252:9 259:9
factor [1] 250:25
factors [7] 123:9 134:22 134:25 135:17,23 136:7 136:10
failure [1] 163:1
fair [5] 67:5 90:21 174:22 189:9 266:4
fairly [1] 218:15
fall [8] 9:25 35:8 142:17 142:19 240:16,22 244:14 246:9
falling [2] 76:12,14
familiar [13] 20:25 56:7 69:6 79:2 132:4 156:18 166:9 187:7 232:15,19 232:19 237:14 238:21
familiarity [4] 93:16 94:1,1,3
families [6] 6:9 7:10 59:10 64:1 257:6 263:7
family [10] 60:17 87:18 202:2 206:25 207:3,4,7 207:18,20 214:18
far [6] 6:3 39:13 138:1 213:25 252:6,12
farm [1] 179:23
farm-out [1] 179:22
Farrell [209] 4:10 5:5,8 5:9,12 6:4 7:16 11:20,21 11:23 15:12 35:3,7,17 36:1,11 37:17 39:18 41:8 41:13,20 42:6,20,24 43:16,20 44:17,21 45:16 45:20 46:3 47:2,6,19 48:16 49:15,19 50:4 51:10 52:9 54:6,10,24 55:4,17 56:9,15,21 57:2 57:24 58:6,13,18 59:20 60:3,24 61:3,13,13 65:4 70:21 75:11 78:1,2 89:18 90:13 110:20,24 111:7 111:11,15 112:1 114:2,8 114:17,25 117:5,19 118:11,15,19 119:20,24 120:16 121:6,12,18,24 122:3,19,24 123:3 125:20 126:20 127:13 128:4 130:14,20 131:10 132:5 132:10 133:18 134:7,7 140:6,14 141:25 146:12 147:5 148:20,24 149:24 150:9,25 153:18 158:14 171:15,18 172:5,10,14 174:17 175:15 176:12,16 176:25 177:12 178:2,23 179:19 180:1,7 181:20 181:25 183:2,6 184:10 184:16,21 185:16,20 186:20 187:1 193:17,18 193:23 195:21 196:7 197:4,21 198:2,9 199:14 199:19 200:4,8,13,19 202:12,19 203:9,20 204:2 204:11,25 205:8,23 207:14 208:4,18 210:6 210:15,21 211:1,19 213:10 214:4,9 215:1,11 216:11,23 217:5 239:11 239:12 240:2,6 241:3,15 242:4,8 243:4 246:3,15 250:15 251:9,24 252:21 253:1,7,16,25 254:16 255:8 256:15,21 261:17 264:8,24
Farrell's [2] 32:23 146:3
fashion [3] 88:24 98:16 230:15
fashioned [1] 91:23
fast [1] 221:3
fear [2] 67:12 69:3
feature [1] 91:8
features [7] 24:16,21 26:20 38:14 234:5 243:1 243:16
February [1] 26:11
fed [1] 136:18
feedback [8] 81:10 85:13 153:2 242:22 244:12 254:17,20,21
feeling [1] 151:25
feet [2] 23:19 190:1
fell [1] 131:14
felt [6] 111:19 171:22 214:22 244:10 247:8 253:18

few [9] 10:17 24:15 25:13 65:22 90:11 107:14 187:15 216:19 240:10
field [15] 9:10 19:21 22:4 22:6 26:14,18 40:8 145:12 159:18 196:19,21 196:24 197:5 219:22 231:6
fields [1] 34:13
fifteen [1] 217:6
fifth [1] 17:16
figure [1] 212:10
figured [1] 175:25
file [1] 66:23
Filebridge [1] 3:6
filed [1] 155:25
fill [2] 82:21 202:15
fills [1] 93:6
final [1] 194:2
finally [3] 20:20 40:21 96:8
finance [1] 146:17
financial [4] 17:22 165:17,23,25
finding [1] 128:24
fine [6] 45:19 106:2 115:14 122:2 158:23 172:13
finish [1] 111:21
finished [6] 9:2,14 10:4 26:17 193:21 231:17
finishing [1] 28:15
fire [6] 60:10 178:11,25 234:7 235:14 237:1
firefighting [1] 38:20
first [59] 8:20 10:22 12:7 12:15,21 15:19 16:10 17:7 19:10 20:1 29:14 32:12 39:10 40:6 43:25 44:22 70:3 74:3,7 79:22 96:21 99:7 103:19 105:2 109:15,22 114:16 118:9 118:12 119:15,18 120:2 123:11 184:14 196:12 198:18 203:7 211:20 214:10,14 215:12,22 218:25 219:25 220:3 224:13 232:24 239:14,17 240:11 241:20 242:10,17 243:7,22 245:3 247:20 252:1,24
fit [10] 78:14 120:14 241:11,12 242:2 249:8 249:20 250:10,12 251:19
fitness [2] 175:20 255:18
fits [1] 36:13
fitted [1] 253:13
fitting [3] 248:5,18,21
five [7] 81:19,20 159:4 172:15 189:25 199:23 238:13
fixed [6] 8:24 131:22 132:3,6,14 139:12
flag [3] 95:23 123:14,20
flagged [2] 96:1 183:20
flare [4] 223:11,12,14,20
flat [2] 152:5,5
flew [2] 11:12 192:15
flexibility [3] 109:10,14 142:10
flight [61] 6:8 8:24 139:21,24,24,25 141:6,7 141:14 171:2,4,8 185:9 209:3 210:2 211:12 212:19,23 213:22 215:6 218:24 220:2,12 222:9 222:13,23 223:23,25 224:14,18,18,20,21,23 224:24 225:3,5,10 226:3 226:13 228:15 230:5 234:11 238:6 239:18,20 240:16 241:16 242:9 248:4,11,14,21,22 249:6 249:8 251:11 257:3,4,19 258:9
flights [17] 128:3 192:16 192:20 219:12,20 220:22 222:10,18 224:9,12 225:21,23 226:20 227:8 229:2 244:20 263:7
flip [1] 59:10
flippant [1] 88:7
flipping [1] 3:23
float [1] 192:6
floater [1] 31:4
floating [2] 19:24 191:16
floats [1] 192:6
floor [4] 27:2 60:12 76:12 76:14
flow [5] 54:11 181:7 205:17,24 209:9
flown [1] 244:8
flows [1] 149:14
fluid [1] 163:9
fluids [1] 181:9
fly [10] 14:16 93:19 104:20,21 215:16,16 228:22 229:1 230:18 245:2
flying [12] 10:2,10 11:13 131:1 132:16 141:12 190:15,22 218:17 228:1 229:5 235:1
FMEA [1] 163:2
FMEAs [1] 167:5
foam [3] 180:22 181:8 235:15
focus [19] 84:22 85:1 86:11 92:13 94:10,11,12 108:6 123:15,20 124:2 125:5 127:1,2,4 130:5 163:21 245:18 246:5
focused [7] 13:25 14:14 17:5,21 85:8 105:24 122:9
focuses [1] 135:22
folks [5] 4:5 113:4 155:16 171:4 248:12
follow [5] 62:9 76:1 77:7 156:8 205:22
followed [1] 224:4
following [11] 19:22 105:4 124:5 125:24 142:6 185:9 215:19 234:3 240:20 260:4 262:2
force [3] 14:9 73:21 141:20
forcing [1] 216:5
forecast [1] 221:15
forecasting [2] 186:5 189:5
foregoing [1] 268:3
foregone [1] 117:17
foremost [1] 214:10
foreseeable [1] 182:8
forget [2] 28:24 102:4
form [1] 72:4
formal [6] 10:22 100:10 101:2 135:14 167:17 173:12
formalize [1] 212:5
formally [2] 13:16 127:9
format [1] 56:7
formatting [1] 156:18
formed [1] 38:22
forth [1] 3:24
forum [2] 71:19 85:20
forums [6] 86:2,5,12,17 116:20 260:22
forward [23] 14:23 24:16 25:2,3,10 68:7 69:3,20 83:15 85:3,5 96:25 117:25 190:7 243:11 246:19,22,24 247:4,13 247:15,19 251:15
found [1] 184:15
four [15] 8:1 27:6 106:9 158:25 159:4,12 164:10 164:20,21 165:6,7 192:4 199:22 238:13 265:21
FPSO [86] 16:7 19:25 20:1,14 21:19,20 22:1 22:11,19 23:12,23 24:2 28:19,22 29:1,8 30:2,4 30:16,19 33:9,22 34:14 36:23,25 39:8 40:2,15 61:23 70:24 72:2 73:4 77:4 95:19,25 96:5 106:14 145:9 156:5 167:14 168:2 170:8,10 177:3 179:6 180:16 185:3 187:19 189:12,17 191:6 191:12 192:3 196:20,23 197:10 206:2 212:20 218:25 219:23 220:1,7 220:10,11,12 221:6 229:17 233:21 234:1 235:6,23 236:8 238:13 238:22 239:16,22 242:15 243:13 246:16 247:16 255:1,24 257:10 261:1,7 261:19
FPSOs [3] 29:5 30:21 191:3
framework [1] 47:10
FRC [1] 222:6
free [5] 70:12 121:22 160:24 221:10 255:7
frequency [3] 109:9 154:2 159:24
frequently [2] 215:14 221:12
fresh [2] 79:2 94:13
Friday [1] 222:10
friends [2] 6:10 257:6
fro [1] 190:14
Frog [2] 29:10,15
Frogs [2] 259:16,25
front [7] 27:13 80:11 83:17 93:20 109:18 190:9 250:9
front-end [1] 38:12
frustrations [1] 230:13
fuelling [1] 238:3
fulfils [1] 36:17
full [7] 30:18 152:25 154:14 159:21 181:7 213:5 266:17
full-time [1] 26:12
fully [12] 24:21 26:23 92:11 104:8 194:22 237:6 240:11 244:19 245:1 246:18,19 250:7
function [6] 109:2 146:4 149:2,11 199:12 235:13
functional [2] 115:17 148:14
functionally [1] 148:17
functioning [3] 64:12 71:10 84:7
functions [3] 7:1 146:12 160:1
fundamental [10] 18:10 46:22 47:25 58:25 62:4 67:10 83:19 95:12 160:5 174:1
fundamentals [2] 49:10 49:21
future [5] 8:12 135:9 222:12 226:15 265:12

-G-

gap [1] 179:13
gaps [2] 89:25 115:21
Gary [3] 4:24 5:12,25
gas [16] 7:1 8:4 9:13 12:6 12:10 17:17 18:20,21 19:13 20:6 49:25 57:14 98:3 107:6 160:13 181:4
gateway [1] 55:5
gather [2] 22:22 199:18
gauging [2] 93:10 137:5
GBS [1] 21:24
gears [2] 82:14 142:25
general [15] 83:7 85:5 107:7 133:9 160:11 162:5 232:7 237:11 242:22 243:12,17 245:7,8 261:2 262:14
generally [10] 8:5 74:12 80:23 85:17 153:23 158:17 221:12 232:19 237:2,17
generate [1] 60:16
generated [1] 136:17
generation [1] 157:15
generic [1] 136:14
gentlemen [2] 1:3 35:19
geophysical [1] 98:20
given [4] 76:10 196:22 212:22 258:22
giving [2] 50:9 202:5
globally [1] 17:23
Glomar [2] 25:23 236:13
go-forward [5] 128:16 131:16,19 132:21 265:7
goal [3] 101:19 107:10 108:17
goals [5] 48:14 84:17 135:3 143:19 146:22
goes [11] 57:16 97:18 121:8 133:24 136:5 139:25 206:7 222:6 250:18,25 267:16
gone [3] 4:16 216:25 248:13
good [30] 1:3 4:5,7,10 5:22 7:20 11:22 70:10 77:22 79:7 80:16,17 82:23 85:23 86:15 94:7 105:9 123:2 124:8 137:25 143:10 155:8,16 190:5 217:14 229:3 248:10 252:14 257:21 267:14
Goodrich [17] 11:1 25:14,15,24 26:10,12,17 28:8 73:10 80:5 97:25 191:22 220:2 236:12 238:15 261:1,19
goods [2] 158:2 238:2
govern [1] 90:1
governance [1] 47:13
graduated [2] 8:14 12:2
graduation [2] 9:16 12:6
Grand [3] 25:23 26:24 236:13
gravity [3] 20:10 31:7 190:25
great [6] 6:22 73:22 76:18 102:24 131:15 142:6
greater [2] 37:2 95:25
green [2] 27:18 255:25
grew [1] 67:19
grief [1] 207:12
group [12] 78:23 122:10 127:24,25 132:20 149:15 201:9,22 202:23 203:13 204:6 219:17
grouped [1] 261:12
grow [1] 220:16
growth [3] 12:17 17:22 131:7

Guard [1] 184:5
guess [19] 39:10 50:7 58:23 123:5 125:13 151:25 154:1 171:12,16 183:9 185:10 186:18,23 229:22 232:23 250:3 259:17 262:12 267:14
guidance [3] 46:13 131:21 202:6
guide [1] 54:13
guidelines [6] 75:20 98:15 99:16 100:14 137:15 234:13
Gulf [2] 9:17 10:11
guys [2] 175:24,24

-H-

half [7] 23:1,2 116:22 121:1,21 190:16 244:7
hallmark [1] 2:20
halls [4] 261:16,20 263:5 264:10
hand [10] 9:11 32:1 55:22 61:9,20 110:20 119:17 180:2 209:13 231:22
handbook [6] 3:16 16:8 173:24 239:17 255:1,3
handle [1] 204:7
handled [2] 104:24 197:25
handover [2] 83:24 84:18
hanging [1] 223:7
Hansen [13] 240:18 241:5,13,18,19 243:8,23 245:14 248:1,2,9,15 250:20
happening [5] 68:18 135:9 152:23 212:2 247:17
happily [1] 131:15
harm [21] 46:10 57:18 58:7,11,24 59:1 60:20 61:5 63:9 67:16 80:1,8 80:20 81:23 82:6 85:23 92:14 93:6 160:18 182:6 255:17
harness [1] 29:24
harsh [1] 27:9
Harvey's [1] 218:10
hat [1] 255:25
hazard [21] 52:19 67:11 67:22 71:15 76:11,22 78:22 79:3 80:7 82:3,5 140:9 159:22 162:24,25 163:16,16,17 167:4 251:3 251:10
hazardous [3] 62:11 66:25 78:16
hazards [23] 40:17,18 57:12 62:10 63:2,21 64:20 71:7 78:14,15,24 79:19 80:19 82:9 84:20 103:3 153:1 159:14,15 166:22,25 237:25 251:13
HAZOP [1] 163:1
HAZOPs [1] 167:5
heading [3] 24:24 188:22 190:5
heads [2] 3:25 259:1
health [66] 6:5 11:25 12:24 13:4,11,14,23 14:4 14:17 18:18 39:22 43:22 50:3,22 51:15 52:11,12 52:15,17 53:7 64:8 70:22 71:2,4,6,16 72:1,23 73:15,22 74:8,12 75:15 84:6 89:20 94:6,7,12 95:11 112:22 113:14 115:19 118:22,24 119:3 143:15,20 144:1,12 146:2 146:9,25 148:18 149:6 149:11,13,14,25 150:16 151:1 173:3 185:5 201:24 206:1 240:8 255:19
healthy [2] 94:8 112:7
hear [4] 1:19 35:20 85:13 86:18
heard [27] 29:14 31:18 41:4 43:12 64:15 66:19 67:8 79:22 89:13,18 93:24 104:13 136:15 165:15 171:24 173:14 174:21 187:10 189:8,9 204:5 215:10 232:16 233:4 242:20 243:18 268:4
hearing [1] 268:4
hearings [1] 252:25
heart [1] 86:24
heave [2] 190:12,12
heavier [1] 234:18
heavily [2] 8:6 176:17
heavy [1] 161:14
Hebron [3] 8:12 20:21 21:7
height [2] 79:8 189:7
heightened [2] 212:3 264:6
held [3] 84:16 85:6 86:3
helicopter [124] 1:12 7:9 9:2 11:16 14:9 16:6 22:12 29:2 30:3,5 36:24 37:7,9 40:2 44:14,14 54:17 73:21,25 80:5 98:9 98:20,21 106:24 114:6 117:16 118:9,10 125:13 125:14 127:21 130:10 132:6,23 133:6 138:11 138:14,17 141:12,19 142:4 150:5 156:9 158:19 162:7,9 167:10,15,25 170:24 179:15,18 183:10 184:18,25 185:1 186:4 187:13,20,21 188:2,6,14 188:24 189:8 191:4,24 196:11 197:10 205:12 206:11 207:4,17 208:21 209:3,18 210:11,13,16 211:17 212:8 213:15 216:6 219:17 221:18,24 223:6,18,18,19 224:24 226:15 227:3,14,15,23 230:4 232:6,12,15 233:23 234:14,18 235:12 236:24 237:3,5,5,8,13,15,18,24 238:7 239:14 244:23 255:21 257:9,12 258:24 263:12 264:12,15,18
helicopters [32] 9:22 11:12 22:9 24:17 73:17 74:5 80:6 87:16 98:6 104:20 117:4 118:4 119:1 121:21 125:19 130:12 139:19 180:5 185:14 186:3,17 189:13 190:15 208:3 218:3,11 222:7,24 223:13 234:25 235:18 262:2
helideck [23] 24:16,18 27:12 28:2 190:7,7,24 192:12 228:19 233:18,21 234:1,4,25 235:7,9,14 235:17,19,23 237:20,25 238:5
helidecks [4] 16:6 191:5 218:2 235:21
heliport [12] 59:12 75:3 209:5 213:2 214:19 218:10 240:18 241:20 248:22 260:7,13,16
Helly [13] 240:17 241:5 241:13,18,19 243:8,23 245:14 248:1,2,9,15 250:19
help [13] 6:19 7:9 63:1 63:10 68:22 71:3 141:22 146:1 162:18 195:15 241:22 247:24,24
helped [2] 212:5 250:9
helping [3] 10:18 220:23 265:9
helps [5] 27:8 63:4 137:21 146:22 181:9
Henry [16] 11:1 25:14 25:15,23 26:10,17 28:8 73:9 80:5 97:25 191:21 220:2 236:12 238:14 261:1,19
hereby [1] 268:2
heritage [1] 42:10
Hibernia [15] 8:11 10:15 13:24 19:22 20:10,12 21:23 89:13 141:13 190:24 192:7,10 231:7 257:4,10
Hibernia's [1] 153:14
hierarchical [1] 152:8
high [20] 11:15 17:21 26:22 48:12 50:9,15 91:18 105:18 141:16 161:19 171:12 180:13,14 181:10,11 184:23 255:15 258:16 264:15 267:4
higher [2] 85:8 110:9
highest [2] 46:12 71:4
highlight [2] 24:15 62:22
highly [3] 101:8,11 228:3
hindsight [1] 250:5
hired [4] 8:22 104:20 177:5,15
historical [1] 110:7
historically [3] 17:4 106:13 108:9
history [5] 16:11 109:24 124:14 180:12 181:16
hits [2] 77:19,20
hitting [1] 76:15
HLO [2] 237:12 238:6
HMDC [16] 33:5 35:23 43:13 45:22 62:16 104:14 105:16 117:13 120:15 127:11 171:22 232:2,8 258:8,12 259:19
hoc [2] 224:12 262:7
hold [2] 84:25 190:3
holds [1] 19:1
holes [1] 251:4
home [20] 8:19 9:19 59:10,23,25 60:7,15 61:6 61:8 63:23 64:2,3,4 202:24 203:1,8,13 230:1 256:10 267:10
homes [1] 60:19
honest [2] 128:7 239:3
honestly [1] 59:8
Honouring [1] 63:4
hood [2] 244:19,25
hook [2] 28:14 223:6
hooked [1] 23:15
hope [1] 6:18
hospital [1] 207:20
HOTF [8] 14:11 155:22 155:24 156:4,18 262:5 262:21 263:10
hour [7] 84:21 120:5 121:1,2,3,21 233:2
hours [2] 153:9 227:2
house [2] 60:9 68:15
housed [2] 30:11 141:22
houses [1] 65:9
HTS1 [2] 253:3 254:18
HUEBA [1] 178:8
HUET [1] 10:23
huge [2] 186:9 262:8
hull [3] 24:24 38:18 107:3
human [4] 93:25 144:17 201:25 207:1
hundreds [1] 101:2
hunts [2] 78:22 79:19
hurt [1] 141:6
Husky [16] 21:4,17 26:6 26:16,19 28:6 128:8 141:13 204:12,18 232:9 257:4,21 258:8,12 259:20
Husky's [2] 28:19,22
hydrocarbons [1] 181:4
hypothetical [4] 150:19 170:23 214:7,7

-I-

i.e [1] 94:24
ICC [1] 209:22
ice [5] 24:22 38:18 39:3 182:21 186:7
idea [1] 200:17
identification [3] 70:25 251:3,10
identified [10] 58:21 63:21 125:23 131:12 159:22 182:9 239:21 249:23 251:4 256:2
identify [9] 40:17 106:20 130:16 135:16 136:7 159:13 166:25 247:24 250:9
identifying [6] 11:19 14:25 71:7 135:22 247:25 265:10
ignore [1] 93:18
illness [1] 52:16
illnesses [1] 59:4
image [2] 55:2 177:10
imagine [1] 57:1
immediate [3] 34:17 153:2 209:5
immediately [11] 12:5 150:10 206:8 208:9 209:12,24 210:23 215:19 240:20 254:5 258:20
impact [9] 46:20 106:23 126:4,17 189:10,12 193:7 266:24 267:6
impacting [1] 246:7
impacts [3] 189:7 206:20 243:20
impending [1] 257:22
implement [2] 52:25 146:18
implementation [3] 135:8 240:21 241:21
implemented [1] 240:15
implementing [5] 63:8 65:2 124:19 126:6 254:17
importance [4] 74:14 142:12 157:9 249:20
important [23] 14:21 71:25 82:8 85:16 105:23 123:18 128:11 150:23,24 163:14 185:3 209:11 218:18 220:24 226:11 228:25 245:16 249:25 250:10 255:9 265:2,9,13
importantly [1] 103:1
impression [3] 156:1 241:7,12
improper [1] 242:25
improve [8] 6:16 7:9 14:23 71:6 135:7 245:15 264:17 265:11
improvement [9] 11:19 14:19 18:6 71:11 75:17 84:14 122:7 135:13 146:23
improvements [3] 80:9 82:11 143:25
improves [1] 93:10

improving [1] 137:18
inbound [1] 258:9
Inc [2] 268:12,14
incentives [1] 94:25
inches [1] 180:21
incident [54] 25:8 67:11 67:22,24 71:15 75:13,23 76:16 91:17 100:13 102:20 105:4 134:23 135:24 136:9 137:2,14 137:17,23 138:1 141:3 188:8,25 194:4 195:6,12 195:14,18,22 198:19 199:5,6,10,17 200:1,9 200:21 201:3,4,13 202:4 203:6,18 204:12,19 209:22,23 215:20 256:24 257:8 258:6,23 262:2 263:15
incidents [11] 64:1 76:3 78:13 103:2 120:3 134:15 135:14 156:9 195:24 216:21 265:12
include [19] 16:2 21:17 31:12 64:6 77:4 84:18 102:15 118:25 119:1 144:7 148:18 162:24 166:11 167:3 169:7,10 169:18 210:16 218:1
included [9] 10:22 16:18 16:22 31:6 35:24 118:23 158:9 260:23 261:1
includes [19] 31:24 40:2 52:12 70:25 99:18 132:21 133:12 145:3 157:13,21 159:23 183:18 185:23 186:1,6 194:10 221:15 235:8 237:11
including [17] 10:2 72:3 72:5 75:9 80:4 91:1 133:6 157:16 162:6 169:12 218:13 234:6 235:9,12 237:16 238:2,6
incorporated [3] 37:15 38:14 98:8
incorporates [1] 61:2
incorrect [1] 156:3
increase [1] 106:12
increases [1] 34:15
incredibly [1] 133:19
indeed [1] 42:23
independent [4] 30:20 133:16,22 149:18
independently [4] 1:23 1:25 147:1 191:18
indicate [4] 28:7 147:21 247:15 257:18
indicated [13] 7:21 21:15 22:11 26:16 103:11 107:18 155:24 167:2 253:13 261:11,24 263:5 265:1
indicating [1] 199:13
indication [2] 252:19 257:21
indications [1] 203:7
indicators [1] 211:24
individual [15] 29:8 49:2 49:3 68:20 114:18 129:4 129:5 152:19 161:4 194:18 201:19 206:7 242:25 243:15 246:21
individuals [24] 29:8 63:10 68:25 72:4 85:18 86:22 91:14 92:7,22 127:15,18,19 144:5 175:22 194:19 212:23 226:22 243:15 246:23 247:14,19 248:1 256:1 260:18
induction [3] 173:21 255:25 256:16
industry [31] 6:12,14,17 7:1,4,25 8:20 12:6,10 14:4,15 15:22 20:6 30:25 57:15 83:7 95:12 98:3 107:7 127:7 132:23 137:18 160:13 175:6,19 176:11 178:8 179:22 228:10 249:3 263:1
Infield [1] 30:6
inflammatory [1] 91:12
inflatable [1] 11:11
influence [1] 134:22
informally [1] 127:9
information [34] 15:21 15:25 55:5 65:9,13,17 73:24 90:20,25 93:23 127:25 128:5 133:15 137:22 138:13 141:19,21 146:17 168:1 213:12 214:3 218:5 228:15 229:2 229:4,8 230:9,16,20 233:20 237:12 249:8 253:23 261:15
infrastructure [2] 205:2 217:23
ingredients [1] 3:21
ingress [4] 249:9 251:22 251:25 252:8
initial [4] 34:1 250:10,12 257:18
initiated [1] 77:5
initiative [1] 75:18
initiatives [5] 14:5 60:5 71:11 75:9,19
injured [2] 138:17 181:14
injuries [3] 59:3 76:2 78:12
injuring [1] 76:15
injury [2] 52:16 76:7
innovation [2] 97:2,4
input [4] 14:3 75:17,18 77:8
inputs [1] 228:1
Inquiry [11] 2:11,23 6:21 11:18 14:24 44:7 81:15 119:11 137:25 158:6 264:1
insert [1] 180:22
inside [1] 137:8
insight [1] 175:17
inspect [4] 40:11 101:25 118:18 235:21
inspecting [1] 104:12
inspection [8] 16:5 106:10 107:16 233:19 235:6,8,19 236:14
inspections [11] 51:2,13 102:10,13 103:6,22 106:14 158:1 169:18,21 170:3
installation [44] 36:16 39:25 43:24 72:1 73:1 75:13 76:8 79:1 80:24 81:22 82:1 84:2 85:7,11 85:12 86:7 89:21 98:19 137:24 144:2 145:8 154:8 154:16 156:7 188:25 192:8 194:24 195:13 196:22 201:11 206:17 212:21 221:21,23,25 222:5,16 223:17 227:7 232:4 243:22 244:24 247:10,18
installations [15] 39:6 64:13 84:8 91:24 96:12 144:11 197:9 217:13 218:1 219:13 220:20 223:12 227:23 228:4 263:10
instance [9] 82:4 88:25 91:9 94:6 139:3 144:8 147:24 219:22 222:1
instructions [1] 166:16
intake [1] 230:9
integrate [1] 18:14
integrated [6] 17:17,20 18:20 43:12,14 64:9
integrating [1] 47:11
integrity [14] 2:19 36:16 37:3 39:24 43:23 50:23 53:5 109:5,18 143:21 146:19 157:25 181:6 249:25
intending [1] 235:2
intense [1] 34:2
intent [2] 99:21 115:9
interact [2] 36:25 208:15
interconnected [1] 187:2
interest [10] 3:13 20:7 20:11,15,22 81:15 113:11 126:17 141:16 142:7
interested [1] 101:19
interesting [2] 9:24 90:10
interests [1] 19:6
interface [1] 45:2
interfaces [1] 95:16
interfacing [1] 133:8
internal [5] 53:24 128:20 137:11 141:21 199:18
internally [2] 122:9,16
international [10] 12:25 13:12 17:2 19:1 130:24 131:5 132:1,22 142:2 147:12
internet [2] 55:2 91:1
interpretation [1] 230:17
intervene [1] 58:21
interventions [1] 37:5
introduce [3] 5:24 60:4 234:10
introduced [1] 254:19
introducing [2] 162:22 255:17
introduction [1] 149:4
invested [1] 18:24
investigate [5] 100:21 134:21 140:11 243:7 246:20
investigated [2] 82:11 135:5
investigating [1] 245:18
investigation [10] 75:16 76:2 77:7 100:14 135:15 135:21 136:18 137:14 138:1 139:5
investigations [1] 75:12
investigators [1] 136:6
invitation [1] 85:18
invited [2] 85:9 263:6
involve [2] 113:3 208:2
involved [11] 8:24 64:23 67:2 107:21 113:3 114:7 114:10 139:5 176:19 259:20 261:23
involvement [1] 68:10
involves [1] 160:15
involving [1] 167:14
isolate [1] 180:20
isolated [3] 101:5 180:25 244:1
issuance [1] 39:10
issue [35] 67:19,25 69:19 74:4 78:11 80:20 101:8 103:13 167:14 187:5 189:6 195:7 202:3 209:4 209:12 210:3,7,13 211:18 213:4 233:1 239:18 242:7 242:10,17,19 243:20 244:1 246:6,17 247:22 247:23 257:22 258:4 262:8
issued [3] 234:2,3,11
issues [37] 6:22 52:18 65:5 68:7 69:3 70:2,6 73:17 85:9 86:8,10 100:18 102:25 103:9,17 118:2 123:24 132:23 142:5 153:5,10 170:1 222:19 226:8 232:23 239:20 242:16,20 243:11 243:12 244:2 246:19 247:4,13 249:14 251:17 262:1
Issuing [1] 113:19
it'll [2] 78:6 98:20
item [2] 242:12,13
items [4] 73:18 129:23 172:9 174:20
iterative [1] 248:5
itself [7] 3:15 24:24 149:18 161:22 172:4 190:7 255:3

-J-

jack-up [3] 10:8 31:6,12
January [5] 1:1 16:16 246:10 268:4,10
jargon [1] 139:12
Jeanne [1] 19:21
job [11] 8:20 9:3 60:6 62:7 80:12 93:2 166:11 177:11 178:1,16 209:16
jobs [2] 62:22 63:17
JOHN [1] 5:13
John's [11] 8:13,25 10:15 12:2 19:15 82:2 102:22 143:15 211:13 268:5,9
joined [2] 10:24 12:11
joint [36] 1:24 4:21 7:14 14:12 15:22 21:13 22:11 24:14 45:21,22 98:14,23 112:5 125:21 131:17 147:25 149:1 157:8 160:14 170:4 171:21 172:20 182:23 184:7 195:25 199:3,4 228:2 239:19 240:7 242:21 250:2 252:2 255:13 261:8 262:4
jointly [1] 126:4
JRCC [2] 184:7 199:11
judgment [1] 231:12
Judy [1] 268:13
July [1] 252:3
jump [1] 193:21
June [1] 242:16

-K-

keep [5] 93:11 94:13 217:7 221:1 267:13
keeping [3] 137:9 157:14 200:25
key [16] 24:15 61:20 63:21 75:8 95:15 113:6 115:2 124:17,17 125:4 169:5 194:14 218:9 229:3 250:24 262:24
kick [1] 116:6
kilometres [2] 23:1 27:12
kind [25] 9:13 20:1 89:8 93:23,25 97:4 111:20 114:7 175:8 201:19 202:23 203:17 204:7 205:3 213:25 214:1 215:9 219:18 223:8 226:5,8 248:6 256:9 262:18,19
kinds [10] 36:6 50:3 64:2 73:18 74:6 92:15 156:10 197:14 205:17 207:12
Kingdom [2] 19:4 259:13
kit [1] 209:7

knee [2] 138:17 141:6
knew [6] 9:14 241:17 258:15,23 259:14 261:15
knots [1] 161:19
knowing [2] 64:21 153:13
knowledge [5] 71:7 73:14 223:13 240:25 242:9
known [1] 33:8
knows [1] 91:6
Kulluk [1] 9:21

-L-

Labrador [13] 8:19,22 8:25,25 11:8,14 12:8 16:24 19:9,13 20:5 150:6 268:6
lack [1] 259:18
ladders [1] 60:11
ladies [1] 1:3
land [11] 139:25 162:9 168:5,6 189:13 191:1,4 191:24 210:17 233:23 235:2
landing [19] 82:17 167:13,15,25 170:25 171:5 179:16,18 193:1 232:3 234:6,10,14 235:13 236:25 237:3,7,22 238:7
lands [3] 224:19 225:9 238:6
lap [1] 131:15
large [10] 87:14 95:2 154:19 201:22 202:18,20 202:20 217:23 238:5 250:17
larger [4] 234:18,21 238:15 250:13
largest [4] 17:17,18 19:18 233:22
last [24] 6:9 7:15 14:12 15:23 17:14 22:12 58:22 62:13 84:21 85:4 99:5 104:1 110:10 143:1 152:15 160:14 168:24 171:16 172:1 182:3 196:8 217:15 254:8,24
lastly [2] 186:5 238:3
late [8] 9:25 11:5 125:23 126:6 240:22 252:20,22 254:19
latest [1] 109:9
latitude [1] 10:3
launch [1] 180:19
launching [2] 179:25 180:13
law [1] 120:12
laws [1] 95:11
lawyers [1] 120:13
layout [2] 157:15,16
lead [10] 18:2 21:11 86:4 92:10 164:12,13 194:25 199:1,10 201:2
leader [3] 85:21 201:13 209:23
leaders [22] 18:13 51:20 68:1 82:22 85:17 86:11 86:13,16 88:21 91:14 92:2,7 125:3 143:14 144:4 147:3,8 152:25 153:8,20 220:24 263:8
leadership [30] 12:19 17:25 18:9,17 47:14,15 50:2,12,21 52:2,21 53:14 53:16,22 63:6 67:23 92:5 92:21 110:2,2 125:1 129:20 142:11 144:10 147:5 153:3,7,19 154:17 218:7
leading [4] 84:14 92:13 164:3 195:8
leads [2] 175:18 176:4
learn [6] 6:15 14:21 87:15 91:19 142:13 265:9
learned [9] 9:12 14:2 42:18 82:12 87:11 136:14 136:17,19 142:1
learner [2] 177:13 179:9
learning [4] 8:10 9:8 63:3 87:8
learnings [4] 8:10 85:3 87:3 137:7
learns [1] 91:6
least [6] 80:23 84:8 146:14 156:1 171:25 199:22
leave [3] 51:16 75:3 96:16
leaving [2] 18:8 92:17
led [5] 136:8 143:12 154:15,20 251:18
left [11] 6:2,4 21:19 25:6 27:19 28:2,21 55:22 175:12 209:13 265:23
left-hand [1] 20:8
legal [1] 113:4
legislation [1] 227:17
legs [1] 192:5
less [5] 20:25 107:10 180:10 232:16 253:14
lessons [7] 14:2 82:12 136:14,17,19 137:19 142:1
level [24] 46:12 47:17,18 48:13 50:10,15,16 54:5 64:25 85:8 91:18 109:5 110:9 128:5 138:11 145:18 147:8 169:15 171:12 184:24 203:14 215:8 255:15 264:15
levels [5] 18:11,13 127:14 164:20,21
Libya [3] 17:3 19:4 48:6
licence [1] 95:13
license [1] 176:8
licenses [1] 19:2
lies [1] 122:22
life [10] 11:11 33:13,17 34:6,21 59:13 60:23 64:5 93:17 94:19
lifesaving [1] 107:5
lifespan [1] 33:8
lifetime [1] 178:20
lift [3] 161:13 223:16,19
lifting [1] 107:4
light [7] 4:13 210:9,11 211:24 212:8 213:23 214:12
lighting [1] 234:7
lights [8] 4:18 167:12,15 167:25 192:13 211:22 213:23 235:13
likelihood [1] 160:17
limitations [3] 191:19 192:19 233:11
limits [3] 190:11,14,16
line [9] 136:8 145:13,19 149:10,17 150:15 161:14 181:7 206:3
lines [5] 137:16 147:20 147:21 148:11 180:18
lining [1] 126:2
linkage [1] 43:3
linked [1] 45:5
list [8] 3:5 91:13 152:25 177:6 179:16 226:1 232:4 232:9
listening [2] 36:8 150:14
literally [1] 101:2
live [3] 8:16 63:8 94:8
lives [1] 213:16
living [1] 30:16
Lloyd's [27] 95:21 96:1 96:13,23 97:7,18 98:3 100:12,23 101:1,4,22 102:11 103:20,25 104:2 104:5 106:4,9,13 109:20 170:18 234:2,11 235:5 236:5,8
load [4] 28:13 218:3 223:8,10
loaded [1] 229:22
loads [1] 222:25
local [1] 148:13
locally [2] 54:14,19
located [3] 21:22 22:6 148:14
location [6] 10:3 22:8 38:8 180:17 191:5 220:7
logistical [6] 40:23 182:19 183:11,15 186:12 204:8
logistics [8] 118:24 127:17,19 168:3 201:8 207:1 209:15 219:17
longer [1] 201:16
longevity [2] 1:19,20
look [33] 14:23 34:16 55:22,23 77:12 79:1 93:24 97:2 105:19,21 108:19 109:25 115:17,19 118:6,21 122:11,12 123:5 123:9 124:15 126:21,23 145:24 156:7 163:10 166:13 173:4 177:2 190:6 191:17 217:11 231:2
looking [19] 1:9,11 2:16 33:15 56:5 59:22 78:24 79:19 80:1 81:20 85:2 94:5 97:1 125:8 129:21 173:1 199:21 201:17 259:10
looks [3] 2:17 172:22 194:12
loss [20] 6:8 13:18 14:13 44:23 46:6,7 48:1 51:20 51:24 65:17,20 89:19 95:9 129:19 146:4,5 147:4,10,12 153:6
losses [1] 46:9
lost [3] 6:9,10 257:6
loved [3] 6:9 7:11 257:7
low [2] 105:18 165:6
lower [1] 106:19
luggage [2] 75:4 218:13
lull [1] 34:4
lunch [3] 151:6 155:11 155:12
luncheon [2] 143:6 155:9

-M-

machinery [1] 173:5
machines [1] 237:14
magazine [1] 60:18
magnitude [1] 258:23
main [2] 182:12 234:8
maintained [3] 187:25 230:21 261:25
maintains [1] 221:10
maintenance [17] 39:24 40:15 43:23 72:5 84:4 101:24 105:11 106:11 108:21,24 109:1,21,24 133:4 157:6,20,24
major [5] 40:21 72:4 89:3 91:8,13
majority [4] 3:11 35:12 68:24 158:4
makes [8] 26:23 46:21 80:20 133:25 198:18 205:4 211:17 264:5
man [1] 218:2
manage [16] 46:9,22 65:17 81:13 92:24 111:22 134:8 140:2 144:16 160:3 165:12 166:7 198:19 201:12 202:7 216:5
managed [10] 36:16 40:18 46:15 58:22 65:19 68:8 127:22 149:11 159:15 198:11
management [123] 13:5 13:19,21 18:12 36:13,14 37:19 38:22 39:4 40:7 41:11,16,22,25 43:6,10 43:12,13,15 44:2,8,23 44:24 45:3,4,7,24 46:5,6 46:8 47:21 48:1 49:20 50:24,25 51:5,11,13,15 51:20,24 52:16,19 53:8 55:6 56:17,23 57:10 58:3 61:15 62:21 64:10 70:20 71:10 72:3 75:25 77:2 80:8 88:23 89:19,20,24 90:1,12 95:10 102:18,20 105:11 108:20,21 109:24 110:21,22 111:17,17,18 113:4 115:12 116:17 123:11,13 124:10,20 125:10 126:7 129:19 133:4,22 134:5,19 135:1 135:10,12 137:3,3 138:11 146:4,5,11 147:4,10,13 153:6 157:25 160:4 162:17 163:24 166:16 169:1,4,11,14,22 170:2 182:21 186:10 195:16 200:24 201:15 249:24 250:6,8,17
manager [45] 6:1,2,4 7:22 8:1 11:4,24 12:18 12:24 14:16 144:8,15 145:13,19 146:2 147:18 147:24,25 148:14,19,19 149:5 152:15,16,21 153:21 154:4,5,9,12,16 154:18,23,25 194:24 195:13 196:23 206:17 212:21,22 214:13,20,20 216:12 247:10
managing [3] 127:16 195:13 199:3
mandate [3] 95:23 262:21,23
manifests [1] 218:6
manner [4] 86:2 90:15 112:10 228:23
manners [1] 147:2
manual [16] 37:7 54:17 54:18 168:6 184:18,25 185:1 186:4 227:3,14,24 232:6,10,12,14,16
manuals [3] 37:12 40:13 157:22
manufacturing [1] 16:25
map [1] 262:22
March [26] 6:8 14:13 16:8 17:12 75:22 105:4 125:24 130:8 141:4,11 203:19 204:18 215:19 242:15 246:21,22,25 247:14,18 256:23 257:1 260:4,5 262:2 263:20 265:5
marginal [1] 34:13
marine [9] 37:11 54:17 96:7 98:9 106:7 107:3 170:17 218:10 250:23
mariner [1] 195:1
maritime [1] 184:2
marked [1] 17:8
marketing [1] 16:21
marking [1] 238:2
markings [1] 235:10
master [1] 195:1

material [3] 156:8 158:6 171:20
materials [4] 91:3 217:22,25 218:9
matrix [6] 164:17 165:6 165:7,10,19 166:5
matter [6] 48:4 74:14 88:2,4 130:8 267:11
matters [3] 15:8 73:20 251:12
Max [1] 261:21
maximize [1] 220:22
Maximum [1] 73:9
may [49] 41:16 49:21,22 54:11,14 57:13 67:10 76:6 78:9 103:10 106:12 113:2,3 122:8,10,12 123:15 124:1,8,17 140:15 161:9,9,24 166:18,18 168:16 170:1 179:1 181:5 192:9,10 197:12 212:25 213:4 217:15 219:16 230:14 231:16 237:7 244:9 246:22 247:14,18 248:22 249:18 251:22 263:13 266:1
mean [14] 34:2 70:1,2 90:7 108:6 133:19 192:6 193:17 216:12 249:21,21 256:6 259:17 264:1
meaning [1] 52:8
means [20] 22:13 24:23 30:6 52:24 65:4 67:20 71:9 80:16,18 85:14 90:19 134:20 161:13 165:24 177:4 198:10 217:24 218:12 222:8 268:7
meant [1] 210:18
measure [2] 189:21 250:17
measurement [1] 248:8
measurements [2] 116:19 248:3
measures [5] 92:14,24 93:9 94:24 160:3
measuring [2] 81:24 189:19
mechanical [3] 8:15 139:22 231:9
mechanism [1] 180:22
mechanisms [4] 69:24 70:5 83:23 169:5
medevac [2] 206:15 222:17
media [2] 90:22 91:22
medic [1] 185:6
medical [15] 52:15 185:2 185:7 205:15 206:3,5,9 206:12,22 207:9 208:12 222:15,16,19,21
medication [1] 91:12
medics [1] 222:22
medium [1] 105:18
meet [19] 35:14 44:4 48:25 84:8 98:12 103:7 113:16 115:9,15 127:18 135:5 153:3 183:23 207:4 207:20 218:19 220:23,25 263:19
meeting [14] 71:17 77:4 93:7 116:7 129:20 146:8 147:7 153:11 178:15 204:6 239:25 246:25 247:1 261:2
meetings [18] 63:22 64:19 73:16 83:25 84:10 84:19,24 85:6 100:17 116:21 169:24 245:13 260:23,23 261:4,5 262:14 263:22
meets [2] 89:1 103:15
member [6] 12:18 14:5 53:15 68:14 75:15 80:21
members [8] 5:24 6:18 52:21 72:7 75:8 103:17 112:18 236:24
membership [1] 84:11
Memorial [2] 8:14 12:2
memory [1] 259:11
mention [1] 37:1
mentioned [11] 4:3 11:24 39:25 69:16 98:24 130:21 133:2 149:3 169:13,23 236:6
merge [1] 17:13
merged [2] 17:14,16
merger [8] 16:3,12 31:25 32:14 42:12,19 130:21 131:14
message [2] 82:21 86:23
messages [7] 63:22 82:16,18 83:20 85:10 88:22 92:9
met [2] 113:15 243:8
meteorological [2] 186:7 189:19
meters [1] 233:25
methodology [2] 40:7 135:22
metres [5] 23:14 27:10 27:11,16 222:5
Michael [1] 215:2
Michele [6] 4:9 5:5,9,12 6:4 11:23
mid [1] 175:12
Middle [1] 7:4
might [42] 22:22 36:9 52:3 65:19 67:15 69:8 79:2 84:22,24 85:4,20 87:1,4,5 92:11 101:24 104:7,9,15 107:15,17 119:10 120:8,21 124:20 127:1 155:17 165:17 191:3 203:6 212:18 213:6 213:24 216:21 218:22 220:2 237:18 241:11 250:13 266:13 267:5,6
mikes [1] 4:11
mile [2] 23:2,2
miles [2] 22:23,24
mind [3] 73:13,14 238:10
minds [1] 264:13
mindset [3] 59:14 60:20 61:7
minimize [3] 46:9 49:4 126:4
minimizes [1] 57:6
minimum [3] 106:7 115:15 169:16
minute [5] 26:17 92:18 103:23 148:20 223:4
minutes [14] 25:13 81:21 84:9 107:14 187:20 188:1 217:6 221:20 239:25 240:9,10 247:6 258:10 265:23
miss [14] 62:13,14,15 71:15 76:5,13,23 139:9 139:12,19 140:5,7,17,21
missed [1] 140:17
misses [6] 57:12 62:11 63:3 76:4 78:14 134:14
missing [1] 179:12
misunderstood [1] 139:20
mitigate [1] 182:5
mitigated [1] 163:18
mitigating [1] 160:2
mitigation [4] 64:21,24 115:25 250:24
mitigative [1] 92:24
mix [1] 229:15
mobile [4] 21:21 22:19 22:22 31:5
mobilize [6] 202:23 212:24 213:4 214:18 257:8 258:13
mobilized [2] 207:17 260:20
mobilizes [1] 206:9
mobilizing [1] 213:1
mode [4] 28:25 163:1 187:6,12
modification [1] 8:3
MODU [25] 21:21 25:14 25:17 27:8 29:1,9 30:1,3 30:10,11,18,25 31:4,8 34:20 73:7 80:4 145:11 191:22 196:20 218:25 219:15,23 221:13 235:19
module [1] 173:19
MODUs [4] 25:22 29:4 72:13 145:9
Molikpaq [1] 9:21
mom [2] 87:18 113:16
moment [6] 7:17 22:17 89:7 93:8 183:13 186:14
Monday [2] 153:4 222:10
monitor [4] 13:16 40:10 128:23 218:7
monitored [2] 129:18 147:1
monitoring [16] 8:9 39:4 39:7 52:15 93:10 103:25 132:21,25 133:3 146:10 157:22 169:8 186:6,7 189:5 234:7
monitors [1] 235:14
month [6] 94:10,11,11 118:21 164:10,11
monthly [5] 13:17 100:16 119:3 147:2 153:5
months [5] 125:18 244:4 244:5 260:21 263:14
Montreal [1] 17:8
mooring [2] 27:6,6
morning [28] 1:3 4:5,7 4:10 5:22,24 6:24 7:20 11:22 12:5 53:18 77:4 103:11 149:4 152:25 153:4 155:19 169:10 196:18 220:12 223:25 224:6,10 225:2,4 259:16 266:8 267:8
Morocco [1] 19:7
Mosbacher [1] 21:18
Moss [1] 268:13
most [24] 3:20 18:11 31:13 32:18 33:20 49:20 55:12,19 56:7 75:23 83:1 120:5 125:21 126:9 127:14 158:17 168:2 170:10 174:5 200:2 202:13 212:13 229:17 238:21
motion [10] 161:11,20 189:10,23 190:8 192:2,4 192:9 193:6,7
motions [1] 228:19
motivated [1] 94:20
motor [1] 9:10
movable [1] 31:7
move [26] 32:7 35:3 37:19 38:23 47:7,22 48:17,18 49:6 70:12,17 114:1 122:4 127:5 128:14 150:14 158:25 171:1 172:15 182:1 190:3 191:7 193:24 194:23 223:22 239:11
moved [5] 8:13 218:14 220:13 224:8 258:13
movement [2] 190:13 192:3
moves [2] 24:3,3
moving [5] 12:19 54:7 67:13 161:18 222:8
Ms [212] 5:5,8,12 6:4 7:16 11:20,21 15:12 32:23 35:3,7,17 36:1,11 37:17 39:18 41:8,13,20 42:6 42:20,24 43:16,20 44:17 44:21 45:16,20 46:3 47:2 47:6,19 48:16 49:15,19 50:4 51:10 52:9 54:6,10 54:24 55:4,17 56:9,15 56:21 57:2,24 58:6,13 58:18 59:20 60:3,24 61:3 61:13,13 65:3 70:20 75:11 78:1,2 89:18 90:13 110:20,24 111:7,11,15 112:1 114:2,8,17,25 117:5,19 118:11,15,19 119:20,24 120:16 121:6 121:12,18,24 122:3,19 122:24 123:3 125:20 126:20 127:13 128:4 130:14,20 131:10 132:5 132:10 133:18 134:7,7 140:6,14 141:25 146:3 146:12 147:5 148:20,24 149:24 150:9,25 153:18 158:14 160:10,19 164:18 171:15,18 172:5,10,14 174:17 175:15 176:12,16 176:25 177:12 178:2,23 179:19 180:1,7 181:20 181:25 183:2,6 184:10 184:16,21 185:16,20 186:20 187:1 193:17,18 193:23 195:21 196:7 197:4,21 198:2,9 199:14 199:19 200:4,8,13,19 202:12,19 203:9,20 204:2 204:11,25 205:8,23 207:14 208:4,18 210:6 210:15,21 211:1,19 213:10 214:4,9 215:1,2 215:11 216:11,23 217:5 239:11,12 240:2,6 241:3 241:15 242:4,8 243:4 246:3,15 250:15 251:9 251:24 252:21 253:1,7 253:16,25 254:16 255:8 256:15,21 261:17 264:8 264:24
multi [1] 182:21
multiple [3] 99:13 208:6 242:20
Murphy [1] 21:18
must [4] 6:16 18:4 61:19 121:5
mutual [4] 98:18 182:23 183:1 195:8
mysterious [1] 266:22

-N-

name [13] 5:2,7,25 7:22 11:23 17:15 31:18 42:14 81:4,5,8 135:21 180:23
names [1] 69:17
national [2] 132:22 184:4
natural [4] 18:21 67:4 111:21 205:5
nature [6] 113:2,5 135:14 189:22 201:23 260:1
near [20] 57:12 62:11,13 62:14,15 63:3 71:15 76:3 76:5,13,22 78:13 134:14 139:9,12,18 140:4,7,17 140:21
necessarily [7] 22:18 42:14 82:24 197:25 200:1 212:1 219:25
necessary [2] 152:3 228:5
necessitates [2] 209:5

210:22
necessity [1] 44:15
neck [1] 247:24
need [57] 29:7 34:2,6,9 34:11 64:3 65:19 70:11 83:16 86:18 89:4,10 91:19 93:2 111:19 113:3 116:3 119:11 125:5 127:1 127:2,4 128:11 129:12 163:17,18 164:13 165:12 173:8 197:10 198:19 201:18 202:6 203:3,13 203:14 206:6,13,20 211:4 212:18,24 213:6,13,14 216:1 226:7 227:6 228:20 247:2 255:4 256:11 259:14,22,23,24 265:6
needed [7] 80:13 207:21 214:22 216:16 238:1 246:5 248:17
needs [6] 59:14 84:12 172:25 176:7 201:12 207:7
negotiate [4] 120:24 121:13,23,25
nervous [2] 213:21 214:16
net [2] 234:6,6
Netherlands [2] 19:4 131:3
nets [1] 235:10
network [1] 237:21
networks [1] 90:24
never [5] 23:11 34:6 55:18 165:20 184:22
new [24] 17:19 42:14 65:1 69:7 97:2 99:8,16 129:15 132:22 146:22 166:21 173:21 177:5,15 240:21 241:21,23 253:3,6 255:25 256:1,2,16 262:8
Newfoundland [16] 7:2 8:16,18 10:20 11:8,14 12:3,8 16:24 19:8 20:5 36:18 48:6 150:6 267:1 268:6
next [43] 21:14 35:4,11 35:15 36:9 39:14,17 41:23 47:8,23 54:1 58:9 61:14,14 70:17,19 75:21 82:13 83:22 85:24 94:10 94:11 112:2 113:9 134:9 135:11 138:2 145:18 147:13 151:14 182:2 200:15 201:17 215:6,7 217:2 220:16 222:7 227:13 229:22 233:16,16 260:21
nice [5] 151:25 161:17 161:23 212:9 256:8
night [17] 10:7 190:15 190:22,22 224:14,18,19 224:21,23 225:3,5,10,20 225:23 226:3,20 227:8
nine [2] 19:11 27:12
NL [1] 268:9
NLOPB [1] 95:21
non [1] 222:19
non-operated [1] 13:8
nor [1] 2:10
normal [5] 249:11 258:2 258:21,25 267:5
normally [1] 247:5
Norske [1] 236:18
north [7] 7:3 8:25 10:3 16:22 17:2,18 19:3
Norway [2] 19:6 131:2
Norwegian [1] 236:22
note [7] 9:24 85:16 90:11 129:23 179:12 246:24 260:3
noted [11] 50:16 95:9 96:8 103:23 105:25 106:4 106:19 115:22 209:1 258:11 261:8
notes [1] 58:24
nothing [4] 140:21 151:9 168:10 265:2
notice [3] 36:9 42:7 82:3
notification [6] 91:8,13 195:25 208:21 209:21 257:23
notifications [1] 207:19
notified [8] 91:15 200:24 207:3 209:16,19,24 258:5 258:11
notifies [1] 209:13
notify [3] 134:21 198:13 206:17
Notwithstanding [1] 141:11
Nova [69] 6:1 11:3 12:14 12:19,20,21 13:17,21 16:1,4,6,7 19:10,11,17 19:20,20,23,25 20:14,16 21:16 25:19 26:11,14,18 27:15 33:13 34:5 36:13 36:22 39:11 40:20 43:5 54:15 70:21 71:23 95:19 96:13 103:20 117:14 122:11 128:9 131:8 144:8 147:24 152:17 154:5 159:13,16 160:9 171:8 172:22 173:23 174:10,14 187:17 189:23 196:23 219:22 225:19 233:21 239:22 242:14 247:16 252:4 255:1 261:6,19
Nova's [2] 95:15 99:5
November [7] 26:5 160:12 240:22 252:16,20 252:22 254:19
now [55] 3:7 4:18 12:21 20:3 25:22 26:18 29:14 30:25 31:15 32:1 35:3 54:5 61:9 66:15 68:4 78:6,11 80:1 82:14 99:18 104:9 110:20 122:2 125:17 126:14,16 129:11 130:22 134:3,8,11 141:7 142:25 151:21 155:7 158:25 168:16 171:15 172:15 175:12 189:17 210:1 216:25 217:1,7 223:24 224:6,7 231:18 231:24 244:20 256:22 259:12 260:10 266:5
number [28] 3:9 7:8 24:20 43:24 69:24 75:9 77:19,23 80:15 85:15 91:20 98:23 106:8,12 107:13 123:4,9 148:25 156:23 162:2,17 185:11 192:16 194:19 221:16 226:12 238:25 244:7
numbers [2] 72:19 267:3

-O-

o'clock [4] 224:7 225:4 225:9,14
oath [2] 4:19,22
objections [1] 267:15
objective [3] 2:10,11 159:19
objectives [9] 6:20 48:14 70:24 86:24 92:9 137:4 143:18 220:23 263:2
obligation [1] 6:15
obligations [1] 146:9
observation [4] 66:24 68:23 92:15 266:5
observed [1] 79:9
observer [1] 117:15
observer's [1] 81:5
obstruction [1] 235:13
obstructions [2] 192:10 221:11
obvious [4] 45:11 74:18 117:15 124:13
obviously [13] 2:20 3:1 56:20 116:5 129:25 131:1 132:7 133:9 141:3 174:5 182:6 185:2,21
occasion [3] 34:9 102:8 222:12
Occasionally [1] 218:14
occupational [13] 59:3 64:8 70:22 71:16 72:23 73:15 74:8,12 75:14 84:6 222:19,20 240:8
occur [2] 75:24 237:7
occurred [5] 65:18 67:12 84:21 136:8 139:6
occurrence [3] 133:1 160:17 188:5
occurring [2] 136:9 137:24
Ocean [1] 264:2
oceanographic [1] 186:7
October [1] 36:21
off [26] 8:21 22:16 27:7 28:2 31:14 34:21 59:17 59:19,22 60:6 70:9 76:12 76:14 116:7 170:10 174:20 180:17 182:1 188:17 193:2 222:4 224:19 225:14 232:3 237:8 260:12
offer [1] 153:17
offered [3] 9:3 12:16,23
offers [1] 152:9
office [8] 17:7 19:14,16 102:22 156:5 204:9,13 257:25
officer [5] 46:17 179:16 179:18 237:3 238:7
offices [1] 82:1
official [1] 224:25
offload [2] 22:2,4
offloaded [1] 21:25
offloading [1] 19:24
offset [2] 67:4 188:23
offshore [125] 7:9 8:4,20 8:23 9:1 10:8,18,25 11:7 13:1,3,12,20 14:15,16 16:4,23 19:1,13 21:21 22:14 31:5 36:18 39:24 43:24 44:1 61:18 69:19 75:2 79:11 83:23 91:24 92:3 96:12 103:10,16 107:6 130:25 146:14 147:12 150:5 152:18,23 153:2,21,25 154:1,8,14 154:14,15,19 161:9 162:1 166:9 174:1 175:21 176:17 177:6 178:13 185:23 192:15,20 193:3 194:3,11,13,24 195:13 195:14 196:17,22 201:11 205:25 206:1,17 209:17 212:21 215:21 216:3 217:2,13 218:1,13,20,23 220:20 222:22 223:16 226:12 227:18,23,25 228:4,14,18,21,24 229:4 229:10 230:11 231:5 233:18 241:17 244:5 245:2 247:10 248:13,14 254:7 255:12,20 256:18 256:19 258:10,18 260:18 260:25 261:10,16,18 262:14 263:8,19 264:9
often [6] 60:5 77:17 99:15 104:23 105:18 110:1
OH&S [9] 64:11 70:24 71:23 72:2,21 84:11,12 103:16 260:24
OHS [18] 93:7 103:8 241:17 242:12,13,24 243:6 245:11,12 246:9 246:11,25 247:5 249:3 249:12 252:4 254:1,9
oil [29] 7:1,24 8:4,20 9:13 12:6,10,21 17:5,9,10,17 18:20,21 20:6 21:18 28:13,15,16 49:25 57:14 98:3 107:6 136:2 160:13 175:6 180:17 181:2 185:21
OIM [14] 73:1 154:7,20 154:22 195:12 197:7,10 197:22 198:12,18 206:7 206:8 228:13 247:9
OIM's [1] 156:5
OIMS [2] 43:11 89:14
old [1] 91:23
older [1] 69:7
on-board [1] 236:25
on-call [2] 185:4 206:18
onboard [1] 255:11
once [17] 22:2 24:6 67:24 77:2 84:9,25 85:6 88:5 102:4 107:16 161:25 164:9 171:25 178:4,7,20 198:15
one [110] 1:25 2:10,12,12 7:8 9:22 15:7 22:10 23:1 26:1,5 27:14 29:11 32:15 35:17,21 36:8,8,9 53:9 53:12 54:5 57:8 69:15 70:19 76:20 79:23 80:23 81:23 83:15 85:21,22 87:20 88:13 94:9 99:17 100:5 107:15 108:4 119:8 120:5 121:3 126:2,3 127:22 134:4 139:13 140:9 143:2 146:14 147:2 150:11 151:10 154:12 156:23 157:1,3 164:2,16 164:19 175:2 177:19 178:6 182:12 183:10 184:22 187:4,8 188:16 191:10,17 193:15 194:14 196:12 197:11,13 198:5 198:10 200:22 201:2,14 207:25 208:5,7,12,16 209:6 211:8 212:6 214:17 215:4 222:9 223:4,22 229:5,22 233:1,3 235:1 236:4 242:19 245:12 246:21 251:4 255:13 257:15 258:3,12 259:17 263:1
onerous [1] 125:25
ones [10] 6:10 7:11 36:20 56:13 64:23 201:10 205:11 234:18 254:18 257:7
ongoing [8] 109:3 116:17 128:6 132:25 166:16 167:17,23 246:8
online [3] 173:16,18,19
onshore [30] 9:8 10:6,16 11:1 13:3 44:1 61:18 92:3 152:18 154:13,17 185:4,8,23 194:4,11 196:14 197:16,19 198:14 198:20,21 205:2 212:5 215:21 222:20 227:25 260:25 261:16 263:6
Ontario [2] 16:25 258:15
onto [2] 76:12 216:6
onwards [1] 240:22
open [6] 5:16 66:16 68:10 71:19 85:12,17
opened [2] 17:7 19:16
openly [1] 70:6
openness [1] 68:5
operability [1] 162:25
operate [9] 24:1 27:10 95:14,19 127:24 163:6 176:6,8 221:4
operated [2] 13:8 107:12

operates [3] 41:19 163:12 237:18
operating [19] 3:12 21:6 22:7 26:25 46:19 48:5 48:10 72:15 89:21 90:10 101:23 102:2 107:2 109:23 110:18 162:23 163:11 204:18 220:25
operation [17] 1:21 31:25 33:1 40:14 87:18 87:19 96:4 109:11 128:19 130:10 131:21 144:11 145:7 161:22,23 218:8 245:17
operational [15] 17:21 35:23 44:3 47:11 73:22 96:11 110:2 153:5 165:17 169:25 201:18 209:4,12 210:3,7
operations [109] 1:10 7:24 8:11 10:1 11:7 12:14,22 13:10 14:9 16:16 17:15 18:22 30:8 36:3,24 37:4,7,9,10,11 37:11,24 38:1 39:2,11 40:1,2,3,3 44:14,15 48:7 54:17,18 72:6 73:21 90:9 98:10,25 99:20,21 100:1 101:4 127:22 131:2,23 131:24 133:6 141:19 142:4 143:17 145:15 148:1 152:14,16,17,19 153:21 154:4,12,13,18 154:19,22,25 157:6,16 157:20,21,23 161:9 162:2 166:15 167:11 168:6 172:18 176:5 183:10 184:18 185:1 186:4 189:8 196:11 201:8 204:20 205:12 209:15 212:22 214:13,20 216:12 221:2 227:3,14,15,18,24 228:16 232:6,12,15 234:11 237:15 258:24 259:14 260:17 264:12,16,18
operator [20] 7:14 9:10 19:19 20:16 21:1 41:5 80:5 86:19 99:7 100:20 101:9 133:16 169:17 170:3 182:22 228:4 230:4 230:12 237:2 243:15
operator's [1] 170:6
operators [28] 1:10,16 1:22 35:10 87:11 98:9 98:10 100:15 103:19 126:1 127:20 133:20 136:2 137:13 164:19 170:22 171:2 187:5,10 188:16 218:5 219:5 241:19 243:9,17 253:18 257:3 265:3
opportunities [6] 11:19 14:25 65:6 105:10,19,20
opportunity [15] 3:2 11:17 12:17 79:3 86:21 91:17 103:6 104:21 105:13 117:9 120:24 244:11 251:12 264:25 265:14
opposed [4] 55:16 69:7 120:10 208:1
ops [1] 184:25
opted [1] 250:13
optimum [1] 188:23
order [2] 34:3 94:15
ordinary [1] 187:12
organization [29] 12:13 18:13 26:2 46:14 49:14 82:22 88:14 122:17 125:4 127:18 143:12,24 144:5 145:22 147:15 149:3 152:4 154:13,15 163:25 166:1 196:13,15 198:22 202:9,11 204:5 214:21 261:6
organizational [6] 45:8 45:14,14 134:5 138:6 143:1
organizations [6] 86:14 86:25 87:4,9 154:11 165:16
Organizing [1] 65:11
orientate [3] 24:23 188:2 190:2
orientation [5] 173:20 187:14 188:4 240:19 241:23
orientations [1] 65:1
original [1] 42:17
originated [1] 88:16
otherwise [5] 70:12 77:12 87:4 180:23 181:8
ours [7] 46:4 89:1 115:13 115:14,15 165:7 232:19
ourselves [1] 253:19
outbound [2] 240:19 241:22
outcome [3] 120:23 139:6 164:21
outcomes [2] 77:8 256:24
outline [5] 15:18 37:2 95:18 184:1 237:11
outlined [11] 35:9 36:18 37:22 100:25 113:7 137:14 184:2,8,12 186:11 195:4
outlines [5] 40:23 46:14 70:23 90:19 116:5
outlining [2] 35:13 69:22
outlook [2] 221:17 226:14
outputs [1] 137:2
outs [1] 77:13
outset [1] 89:22
outside [7] 6:13 107:25 163:13 165:12 166:7 216:9 260:11
outstretched [1] 262:17
over-arching [1] 36:14
over-the-shoulder [1] 11:11
over-the-side [1] 187:22
overall [6] 37:16 147:9 159:25 169:5 218:8 228:25
overarching [1] 43:6
overlap [2] 37:25 107:19
overlaps [1] 89:25
overnight [1] 266:3
oversight [2] 131:4,21
overstatement [1] 7:6
overtime [1] 219:15
overview [10] 16:11,13 21:15 31:24 40:6,21 160:10 233:18 239:16 255:15
own [16] 8:8 73:1 78:5 82:21 93:17 97:11 114:14 120:25 122:16 123:11 133:16,21 172:3 192:8 198:19 211:16
owned [1] 25:24
owner [1] 13:22
ownership [1] 137:20

-P-

package [1] 136:4
pad [1] 167:13
page [4] 119:16 177:24 178:5 223:22
pages [1] 3:24
pagination [1] 119:16
panel [37] 1:7,23,24 3:9 3:14 4:21 5:24 6:18 7:14 14:12 15:22 21:14 22:11 24:14 45:22,22 98:14,23 149:1 157:8 160:14 162:12 171:21 172:20 182:23 187:9 228:2 239:19 240:7 242:21 250:2 252:2 255:13 261:8 262:4 264:23 265:19
Panelists [1] 70:15
panellists [2] 4:23 155:8
paper [4] 55:16,18 91:23 156:5
paperwork [1] 107:22
Paperworkers [1] 261:5
parameters [4] 163:11 163:13 189:20 192:22
parent [1] 17:6
park [1] 233:23
parking [2] 233:25 234:5
part [74] 3:17 8:7 25:3 27:13 31:15 40:8,12,15 40:19,21 41:11 44:5 53:9 57:3 61:15 75:16 90:6,6 90:9 99:6,22 101:17 109:3 110:22 111:1,6,8 116:3 121:22 125:23 126:24 134:4 143:2 151:10 157:1,3,4,4,10 157:19 158:25 159:12 166:10 168:11 172:15 173:8 182:2,11 183:7 185:22 193:24,25 202:13 203:1 208:23,24 213:15 219:7 222:22 224:20 229:17 230:21 236:25 249:12,25 255:23 256:16 256:18 258:3,25 261:19 262:21,23,25
participants [1] 86:11
participate [7] 11:17 61:19 64:7,21 80:21 92:16 126:3
participating [1] 133:24
participation [2] 75:12 92:14
particular [12] 1:20 44:11 58:11 88:13 103:13 106:23 167:16 177:11 188:3 189:12 208:22 224:2
particularly [6] 1:12 37:25 49:24 126:18 129:10 183:9
parties [3] 3:7 101:3 265:23
partner [3] 8:11 21:6 128:8
partners [7] 21:16 127:6 128:9 131:18 135:11 137:9 170:4
parts [7] 2:17 43:1 111:4 111:12 118:6 142:7 176:4
party [2] 2:21 42:18
passenger [2] 14:8 98:21
passengers [9] 170:25 212:16 213:2 214:15,16 222:14,24 241:23 244:18
past [3] 109:19 126:14 131:18
path [4] 1:8 9:5 251:18 251:19
paying [1] 150:13
Peet [1] 268:5
people [103] 7:5 12:12 17:22 18:2 27:1,3,4 29:18,20,25 30:10 35:22 39:22 43:22 44:1 46:10 46:20 56:8 59:23 60:8 60:18 61:5 63:18 64:22 65:15 66:20 67:21 68:22 69:17 72:8,10 73:7 77:25 78:23 82:20 83:21 85:20 92:16,25 93:19 104:4,18 113:4 123:17,18 128:12 138:23 145:3 157:10 159:25 160:19 162:6 163:20 164:12 166:12 168:3 182:6 188:8 189:2 194:14 197:17 201:5,22 201:23,25 202:16,25 203:13 206:20 208:2 209:7 212:24 213:12 216:13 217:22,24 218:8 221:16 222:8,18 226:7 227:2 238:8 244:8,9,22 245:2 247:7,11 248:10 248:11 250:10,13 251:19 255:11 256:8 259:2,22 260:12 264:3,4,5 266:14
people's [1] 227:7
per [8] 84:25 85:6 106:9 106:14 221:12 222:9 223:23 226:20
percent [4] 20:11,15,19 20:22
perception [1] 74:19
perform [6] 125:17 160:23,25 161:21 167:7 194:15
performance [41] 13:17 14:20,23 18:5,16 44:5 48:2 75:17 80:10 84:14 86:5 101:23 102:2 108:3 108:7 109:12,15,17,17 110:6,7 111:23 116:16 116:18,21,24 122:8 123:23 124:10 125:14 143:16,23 144:7 146:21 147:1 149:13 150:12 169:6 244:12 245:15,19
performance-based [1] 101:19
performed [2] 62:24 125:19
performing [5] 126:18 133:16 161:12 166:13 167:1
performs [1] 103:21
perhaps [15] 1:18 42:5 69:6 83:14 104:7 119:6 137:6 138:5 139:19 155:8 166:21 175:3,16 241:8 241:11
period [6] 10:13 33:20 84:21 201:18 240:23 241:14
periodically [2] 39:12 103:24
periods [1] 74:23
permit [2] 64:14 253:15
permits [1] 120:1
person [21] 79:8 83:13 91:9 113:1 138:22 168:9 177:5,17,22 178:7 197:24 199:18 206:18 207:21,25 209:15,20,24 212:7 214:7 242:1
person's [3] 81:4 209:16 245:21
personal [5] 63:22 93:17 158:1,8 240:25
personally [2] 263:25 267:2
personnel [23] 29:17,24 86:4 119:25 166:9 174:4 174:24 216:10 218:12,16 221:5,9,14,18 226:12 229:9 240:19 241:13 258:10,14,22 259:15 260:8
persons [1] 107:24
perspective [9] 34:19 73:5 101:13 113:13 122:6 160:13 170:6 172:23 250:24
pertaining [1] 227:17
Petro [13] 11:6 16:2,12 17:24 41:17,25 42:9,10 44:23 83:9 125:17 129:1

258:6
Petro-Canada [25] 10:24 12:11,16 16:15 17:13 19:14,18 31:25 32:13,22 41:19 42:8,17 65:10 73:2 114:14,21 125:16,22 126:13 130:22 165:5 175:22 220:8 258:15
Petro-Canada's [5] 16:18 19:8 33:2 58:23 257:1
Petro-Canada/Suncor [1] 43:14
petroleum [4] 13:20 14:6 36:19 98:19
PHAs [1] 166:17
phase [19] 12:20 34:1 37:23,24,24 38:1,2,9,10 38:15,16,23 39:2,3 40:1 61:22 159:17 162:21 172:24
phases [1] 37:22
philosophies [1] 182:12
philosophy [3] 58:24 172:16 202:21
phonetic [1] 229:19
photo [2] 27:14,24
photograph [1] 27:25
physical [1] 144:16
physically [7] 148:16 148:16 170:8,10 187:24 229:9 234:17
pick [3] 136:10 188:8 189:1
picking [1] 75:3
picture [4] 22:8 26:21 174:3 211:9
pictures [2] 248:11,14
piece [18] 26:22 48:1 56:2 101:25 109:1 112:21 115:11,24 161:15 163:5 163:11 181:8 186:9 189:15 207:11 213:9 219:1 223:15
pieces [2] 106:12 180:25
pig [6] 179:25 180:13,19 180:23 181:6,17
Pike [2] 35:8 36:20
pilot [6] 168:9,13,24 210:11 211:14 214:12
pilots [6] 132:11,15 211:24 228:20 230:17 237:4
pipe [3] 180:20,25 181:1
pipeline [1] 180:15
pitch [2] 190:12,13
place [30] 32:19 64:12 65:13 68:21,22 69:1 71:24 81:3 82:24 84:7 92:4,24 93:4 99:5 104:7 117:16 127:15 134:23 147:15 155:9 160:3 162:18 203:18 208:22 212:4,12 227:1,24 250:6 268:5
places [2] 22:23 131:2
plan [74] 16:4 17:13 32:18,24 35:11,13,23,24 36:2,3,12,17,22 37:8,13 37:16 38:3,6 39:11,20 39:21 40:5,5,13 41:5,12 41:18,21 42:12 43:1,2 50:20 53:12 54:15 60:10 90:7 98:17 99:6 102:18 102:19 110:23 111:10 115:25 124:4 129:7 143:3 144:6 151:10 157:5,11 157:13,19 159:1,12 160:9 171:17 172:15,23 182:3 182:3,11 183:8,12,16 184:1,12 186:12 194:2 194:16 195:4 216:24 234:10 262:18,24
planned [2] 126:3,5
planning [4] 10:6 182:14 185:22 201:8
plannings [1] 201:17
plans [27] 3:13 36:2 39:4 39:7,9 40:22 51:22 53:1 53:10 64:21,24 86:9 98:13 134:24 144:3 146:18 169:2,2 182:5,7 182:17,20 194:5 198:3 198:23 205:10 263:11
plant [2] 25:8 44:4
plastic [1] 180:22
platform [3] 10:17 154:3 257:10
platforms [1] 87:12
play [1] 94:25
played [2] 71:25 75:8
players [2] 1:16 107:21
pleased [2] 11:17 265:14
plus [4] 106:13 153:9 233:25 263:6
PMs [1] 108:22
point [15] 2:8 9:25 27:6 33:21 42:3 45:11 62:12 106:19 110:3,4 198:20 253:21 254:15 256:9 259:4
pointed [3] 72:25 82:9 231:4
points [2] 132:18 173:19
policies [3] 115:10,13 122:12
policy [3] 46:13,15 227:3
politicians [1] 260:24
pool [2] 200:17 259:5
pop [2] 87:18 113:16
populated [1] 102:25
portals [1] 218:9
portion [3] 47:8 130:10 224:24
portions [2] 15:19 186:8
pose [3] 163:15 188:5,6
position [16] 9:16 10:5 10:14 12:23 13:9 20:5 23:25 152:22 188:7,23 190:4 194:15 219:16 223:20 225:19 244:22
positioned [3] 80:14 230:9 245:23
positions [2] 148:12 176:1
positive [2] 252:9 253:9
possible [5] 2:24 71:4 91:7 182:16 186:19
post [1] 91:22
posted [2] 84:10 247:6
potential [8] 46:10 105:22 159:21 160:15,18 163:11 210:13 258:4
potentially [4] 161:12 166:14 246:7 258:16
power [2] 151:25 157:15
powerful [1] 83:1
PowerPoint [3] 3:10,14 3:22
practical [1] 71:3
practice [10] 72:18 75:21 174:3,23 176:13,18,20 176:22 237:10 249:2
practices [11] 14:1 18:15 43:4 48:19,21 50:13 51:1 51:12 53:4 57:9 169:23
pre [1] 113:12
Pre-job [1] 64:19
pre-qualification [1] 113:11
precautions [1] 237:25
precisely [2] 51:8 257:19
predominant [1] 32:15
prefer [1] 180:8
preference [2] 69:25 202:22
prelanding [1] 237:21
preliminary [3] 1:7 3:3 3:4
premier [1] 17:20
premise [1] 46:7
preparation [1] 206:11
preparations [1] 237:22
prepare [2] 1:24 223:17
prepared [2] 1:22 116:4
preparedness [3] 51:4 51:14 182:13
prescription [1] 91:11
prescriptive [9] 101:21 107:7,10 108:2,7,10,15 108:17 110:5
present [3] 226:21 240:18 264:25
presentation [29] 3:10 3:14,18,22 4:20 15:23 15:23 21:14 32:23 35:12 35:13 45:13 51:9 96:18 98:14,24 104:10 117:10 157:8 158:14 164:17 171:22 172:3 233:17 239:8,19 254:3,25 261:9
presentations [4] 1:23 2:2,5 249:5
presented [1] 98:16
presenter [1] 215:2
presents [1] 162:19
president [2] 147:7,23
pressure [4] 163:9,10 230:4,7
pressured [2] 180:15,19
pressures [1] 181:11
presumably [1] 178:21
pretty [4] 49:24 53:15 110:8 259:12
prevent [7] 24:25 63:4 135:1,9 137:1 140:8 265:11
preventative [3] 108:24 109:1 160:2
preventers [1] 108:11
previous [3] 167:3 171:22 208:9
previously [5] 4:24 99:13 100:1 169:24 261:11
primarily [4] 97:7 104:19 105:3 107:1
primary [13] 9:22 22:13 25:21 26:25 28:25 30:7 218:12 222:8 237:3 245:17,21 246:5 258:7
prime [1] 164:2
principle [3] 48:9 67:10 94:21
principles [6] 61:20 62:6 63:5,8 110:13 237:17
print [2] 56:10 91:22
priority [4] 7:8 222:17 222:23 227:1
Pritchard's [1] 157:7
ProAct [24] 57:22,23,25 65:3,8 66:10,16 69:16 70:5 77:8,11,17 85:23 91:1,7,16 102:23 141:17 141:22 152:24 155:22,25 156:7,10
proactive [2] 208:24 264:11
probability [1] 137:23
probative [1] 2:23
problem [4] 188:5,6 193:19 213:24
problems [2] 211:12 213:24
procedure [2] 123:19 262:6
procedures [31] 18:14 40:10,13 43:4 44:3 48:20 50:14 52:17 54:3,11 55:7 56:1 57:8,11 62:10,25 71:3 80:17 92:23 93:1 109:25 115:10 122:11 136:20 137:6 146:18 157:9 169:12 238:3 255:22 262:16
proceed [1] 232:2
proceedings [1] 1:14
process [59] 11:18 33:21 42:16 55:13 56:24 81:17 89:3 96:10 99:8 104:24 112:3,11,14 113:7,12 114:7,9 115:3,6,16 117:21 128:22 134:19 135:2 136:14 137:3 138:10 159:16,20 162:23 163:20 166:22 167:2,4 167:18 170:14 171:13 181:14 182:10 205:4 209:10 211:3,6 212:6 228:1 229:6 248:5,20,21 249:9,24 250:6,16 251:3 251:11,16 254:20 255:11 262:5
processes [18] 48:19,24 54:3,19 60:1 63:9 111:19 123:12,17 134:23 157:7 157:10 160:6 168:25 169:13 187:16 194:6 232:7
procured [1] 259:7
produced [2] 21:24 100:13
Producers [1] 14:6
producing [1] 19:21
product [1] 63:2
production [23] 8:4 9:9 9:9 12:14,22 16:19,22 17:5,9 19:2,24 20:13,17 25:5,8 34:4,15 72:6 84:4 99:19 157:22 177:15 183:20
products [1] 46:19
professionals [5] 13:2 86:12,13 91:14 146:13
profound [1] 6:11
program [24] 9:7 60:13 75:11 80:3 88:16 92:13 92:15 94:22 106:19 122:5 122:13 123:8,10 125:6 125:24 126:11,23 128:16 128:21 136:2 173:22 214:23 215:25 256:1
programs [16] 19:16 59:7 60:5,8 65:2 71:6 94:4 99:20 108:19 115:19 115:21,22 123:17 133:5 137:6 173:21
progress [2] 129:18 143:18
progressed [1] 11:3
prohibit [1] 115:23
project [18] 6:1 10:16 12:20 19:17 20:24 21:1 21:7 34:7,22 37:23 38:1 38:23 39:2 41:6 71:24 117:14 131:9 172:24
projects [3] 33:24 126:15 137:20
promote [2] 67:3 137:21
promoted [1] 137:21
promoting [1] 71:5
promotion [7] 9:4 45:1 61:11 82:15 94:6,8,13
promptly [1] 130:12
propeller [1] 190:1
properly [3] 219:20 226:23 253:13

property [2] 46:20 160:19
proposal [1] 113:19
proprietary [2] 3:13 136:1
protect [3] 63:1 144:11 144:13
protected [1] 25:4
protection [8] 25:12 27:1 36:19 39:7,23 43:22 79:15 102:19
protective [2] 158:1,8
protocol [12] 203:24 207:9 208:19,21,22 209:6 209:23 212:4,15 216:18 253:11 258:3
protocols [9] 194:7 195:2,6 196:10 205:9 207:24 208:15 216:20,20
provide [30] 15:24 16:10 21:15 65:4 67:20 99:23 100:21 102:9 119:25 120:2 129:9 131:20 173:8 175:16 184:11 202:1 206:21 211:5 212:11 213:2 217:24 218:5 228:5 228:24 230:15,20 233:17 240:18 248:15 258:8
provided [10] 160:10 184:3 229:8 235:17 240:7 244:16 245:10 249:6 254:1 261:9
provider [3] 114:6 117:17 206:5
providers [4] 87:5 222:21 228:6,11
provides [12] 13:7 37:8 46:13 47:12 54:1 100:14 134:19 135:12 147:16 183:16 194:3 227:14
providing [9] 14:3 92:25 118:8 130:24 131:4 132:20 133:9 144:10 146:8
province [1] 6:14
provincial [1] 64:8
provision [1] 228:15
proximity [3] 22:20 34:14 222:2
public [6] 3:15,17 12:8 67:25 85:19 202:3
publicly [3] 16:17 33:8 141:20
pull [2] 123:10 124:25
pulled [1] 179:15
pulling [2] 87:1,2
pulse [1] 93:11
Puma [1] 234:21
punitive [1] 94:23
purists [1] 236:17
purpose [4] 24:15 191:12 191:15 193:6
purpose-built [1] 21:25
purposes [1] 134:11
pursue [1] 2:21
pursued [1] 70:16
push [3] 4:12 102:1 109:21
put [20] 3:5,20 29:18 30:1 41:3 81:8 92:23 111:20 115:8 119:10 180:24 203:18 205:9 212:4 230:4 250:3,6 251:5,15 255:9
puts [2] 209:20 212:12
putting [1] 211:2
pyramid [2] 64:25 146:6

-Q-

Q.C [383] 1:5 4:4,8,17 5:13,14,19 15:3,16 20:23 21:5,10 22:15 23:4,8 24:5,10 25:16,25 26:7 27:17,23 28:18 29:13,21 30:24 31:9,16,21 32:2,6 32:11 33:3,18 34:23 35:2 35:16 36:5 37:14 39:16 41:1,10,15 42:2,15,22 43:9,18 44:12,19 45:10 45:18 46:1,24 47:4,16 48:8 49:12,17 50:1 51:6 52:6 54:4,8,22 55:1,15 56:6,11,18,25 57:20 58:4 58:10,15 59:15,24 61:24 62:17 63:12 64:16 65:21 65:25 66:4,9,17 68:12 69:4,12 70:8,14 71:13 71:20 72:12,20 73:12 74:2,16 75:5 76:9,19,24 77:14 78:4 79:14,21 81:2 81:11 83:3,8 87:10 88:1 88:9,18 89:6,15 90:5,16 93:13 94:17 95:4 96:15 97:8,16,22 99:2,9,25 100:4 101:6 104:6 105:5 106:1,22 107:23 108:13 108:23 109:13 110:12,19 111:2,9,13,24 113:25 114:4,13,23 116:25 117:7 118:5,13,17 119:5,22 120:7,19 121:10,14,20 122:1,15,21 123:1 125:12 126:12 127:8 128:1 130:6 130:18 131:6 132:2,8 133:11 134:10,16 135:18 135:25 136:12,22 138:4 138:9,24 139:8,17 140:20 141:2 142:16,22 143:4,9 144:14,20,24 145:6,17 145:23 148:3,8 149:19 150:2,18 151:3,11,15,20 151:24 153:16 154:6,21 155:1,5,15,23 156:11,16 156:21 158:7,16,22 159:2 159:9 162:4,14 163:23 164:6,15,24 165:14 166:20 167:8 168:15 170:9,19 171:9 172:2,7 172:12 174:15,19 176:9 176:14,23 177:9,23 178:18 179:14,21 180:4 180:9 181:13,18,22 182:25 183:4 184:6,13 184:19 185:13,18 186:13 186:22 187:3 188:10,15 189:3 190:18 191:2,11 191:20 192:24 193:8,12 193:16,20 195:17 196:5 196:25 197:18,23 198:7 199:9,16,25 200:6,11,16 202:8,17 203:4,15,23 204:4,22 205:6,19 207:10 207:23 208:14 209:25 210:10,19,24 211:7 213:7 213:19 214:6,25 216:8 216:15 217:4,18 218:21 219:6,24 220:14 223:2 223:21 224:11,17 225:1 225:8,13,18 226:4,18 227:9 229:7,13,21 230:19 230:25 231:11,15,20 232:13,21 233:8 234:16 234:23 235:22 236:2,9 236:16,21 238:4,16,23 239:4,9,23 240:4,24 241:6,25 242:6 243:2 245:25 246:13 249:19 251:7 252:18,23 253:12 253:22 254:10,23 255:2 256:12,20 257:11,17,24 259:3 260:9 262:3,11 263:16 264:19 265:18 266:9,16,21
qualification [3] 75:20 113:13 174:4
qualifications [3] 40:20 174:24 237:10
qualified [1] 113:18
qualify [1] 91:12
quality [8] 45:4 63:2 110:22 111:17 112:23 115:20 125:10 133:5
quantify [1] 163:17
quarter [3] 116:22 233:24 242:11
quarterly [5] 13:19 100:17 103:21 106:15 129:19
Quebec [1] 16:25
questioning [1] 70:16
questions [19] 15:4 32:7 65:22 66:6 148:25 151:17 171:15 181:23 187:8 206:8 217:14 220:15 231:23 256:4 261:10,12 265:20 266:4,11
quick [8] 28:24 46:18 55:20 172:21 177:1 202:21 203:11 256:7
quickly [5] 32:12 91:6 108:4 182:1 258:13
quite [14] 39:13 44:7 87:14,15,17 110:1 121:8 131:11,14 172:1 201:22 215:25 221:22 244:21
quizzes [1] 173:18
quote [2] 62:13 239:25

-R-

radar [1] 231:8
radio [1] 218:4
railings [1] 234:9
rain [1] 27:1
raise [1] 103:12
raised [9] 12:1 67:25 77:10 104:14 127:12 153:1 170:22 239:18 240:12
raising [1] 140:9
ran [1] 135:19
range [4] 159:21 182:16 187:11 188:21
Ranger [1] 264:2
rather [7] 3:18 45:13 68:16 126:1 133:15 201:21 266:7
RCMP [1] 196:1
reaching [1] 134:3
reaction [1] 93:25
read [2] 62:6 119:23
readied [1] 188:7
readiness [1] 173:2
ready [7] 1:4 127:4 156:22 189:1 205:3 222:6 237:6
real [4] 68:6 212:3 213:24 213:24
reality [2] 62:22 74:20
realize [1] 203:6
realizes [1] 197:11
realizing [1] 203:2
really [34] 30:7 43:2 44:7 47:9,25 59:12 67:20,24 76:22 83:19 92:9 108:1 115:3 119:9 125:8 132:19 151:9 173:1 175:18 176:4 194:2 196:9 200:22 206:7 210:18 232:11 240:11 242:3,10 248:10 249:2 253:17 264:4 266:1
reason [9] 105:9 150:12 167:14 197:14 206:18 216:3,18 226:13 255:9
reasonably [1] 130:11
reasons [1] 139:22
rebid [1] 124:7
receive [3] 90:25 96:19 256:13
received [2] 91:9 245:6
receives [1] 100:19
recent [6] 25:18 107:9 123:16 125:18,21 126:9
recertification [1] 234:12
recertifying [1] 178:15
RECESS [2] 70:13 231:19
recognition [1] 142:11
recognize [6] 42:11 88:6 203:5 220:24 228:9 244:4
recognized [2] 249:1 251:14
recognizes [2] 46:18 199:1
recommend [1] 129:16
recommendation [3] 70:3 113:22 117:25
recommendations [5] 14:11 134:24 156:12,15 263:11
recommending [2] 71:2 118:2
recomplete [1] 34:8
record [4] 69:17 134:21 177:19 231:21
recorded [1] 141:8
recording [2] 57:25 71:1
records [2] 137:9 230:22
recreational [1] 30:19
recruitment [1] 172:16
recurrence [1] 63:4
recurrency [1] 178:10
recurrent [1] 178:25
recurring [1] 178:19
red [6] 4:13,18 10:8 165:11,18 166:6
redacted [1] 119:9
reduce [4] 40:9 92:25 135:7 137:23
reduction [1] 47:12
refer [14] 3:19 20:4 25:10 62:13 84:5 89:2 91:21 132:3 139:20 161:12 163:2 181:17 200:2 255:5
reference [14] 20:3 24:1 37:15 55:10 57:18,21 70:21,23 119:11 216:22 239:24 242:23 256:8,8
referenced [3] 54:16 75:11 239:20
references [1] 140:16
referred [6] 31:7 125:15 147:5 183:1 208:8 215:3
refers [2] 81:19 209:2
refining [2] 16:20,24
reflect [2] 148:11 266:2
reform [3] 99:22 102:7 107:9
refuge [2] 25:11 38:19
refuse [3] 58:19 64:7 66:22
regarding [2] 101:4 229:4
regardless [1] 80:22
regime [4] 95:17 107:6 110:8,17
regimes [4] 87:23 95:20 101:24 107:11
region [17] 6:3,6 12:25 18:25 51:21 52:21 53:20 53:22 118:23 129:21 147:3,4 149:13,17,18 150:12 200:3
regional [4] 13:18 47:15 48:20 150:10
regions [1] 48:24
register [16] 95:21 96:2 96:14,24 100:12,23 101:22 102:12 104:5 106:4 109:20 234:2 235:6 236:5,8 261:25
registered [1] 236:3

Registrar [5] 4:21 5:1,6 5:10 119:7
regular [14] 100:17,24 127:20 132:7 166:10 169:24 222:23 235:2 238:5 242:12 249:4,12 258:17 263:21
regularly [5] 18:17 84:15 219:5,11 224:9
regulated [6] 98:6 101:8 101:10 170:14,16 228:3
regulation [2] 101:12 169:20
regulations [14] 36:20 64:9 95:22 96:6 98:5,15 98:19 102:16 108:9 143:22 144:2 168:10 227:17,22
regulator [2] 108:19 130:2
regulators [2] 200:25 260:24
regulatory [31] 13:6 45:2 51:23 52:2 95:16 95:17,20 99:22 100:9 101:18,20 102:3,6 107:6 107:11,12 110:8,17 124:12 125:11 128:18 129:24 132:17 135:6 146:20 168:22 169:7,9 173:2 178:5 201:25
reinforced [1] 59:5
reinforces [1] 63:6
reinforcing [1] 93:2
reinstate [1] 180:25
relate [1] 235:1
related [16] 38:13 61:17 73:24 74:14 90:20,25 91:3 92:9 138:22 142:15 202:2,2 221:25,25 245:9 262:1
relates [3] 152:18 168:7 262:1
relating [1] 141:19
relation [4] 74:21 98:9 206:11 253:2
relations [2] 51:3 202:3
relationship [8] 100:22 128:17 136:13 147:22 148:2,17,23 149:2
relationships [2] 128:7 147:17
relative [2] 22:21 161:3
relatively [4] 23:5,7 27:19 255:14
relevant [9] 2:22 44:7 84:24 158:5 180:5 183:9 183:9 216:21 227:16
reliability [3] 47:11 50:23 53:6
reliable [1] 229:2
reliably [1] 44:4
reliance [1] 176:10
relied [3] 131:17 175:7 228:7
relies [1] 8:6
reluctance [1] 67:11
reluctant [4] 66:22,23 66:23 101:10
rely [7] 169:19,21 170:2 171:23 176:17 198:23 216:9
relying [2] 55:16 127:6
remain [1] 103:14
remaining [1] 92:1
remarkably [1] 2:6
remember [2] 79:24 264:13
remind [3] 1:13 248:23 265:5
reminder [1] 247:11
renewable [1] 18:24
renewal [3] 98:25 99:5 99:7
renewing [1] 121:15
reoccurrence [2] 135:1 137:1
repeat [2] 7:15 80:15
repeatable [2] 228:17 230:15
replacement [1] 223:11
report [26] 13:10,16 57:11 62:10 66:23 67:11 77:10 80:16,19 82:5 97:13,17 134:21 135:10 148:14 149:5 154:22 155:22,25 156:4 195:24 202:4 254:4,6 257:9 263:10
reported [12] 18:16 76:4 77:2 78:12,15,16,21 82:10,10 135:4 150:21 152:6
reporting [38] 52:16 61:5 63:2 65:10 67:3,16 67:21 76:1 80:7 96:18 96:22,24 97:5 100:13,24 102:9 107:20 116:14 118:21 119:4 137:12,15 138:25 140:15 145:13 146:11 147:17,18,22 148:2,22 149:1,10,12,17 150:15 209:23 257:18
reports [9] 18:25 71:8 100:17 116:23 133:1,2 148:4 152:19 155:2
represent [1] 132:19
representative [8] 13:23 14:8 73:2 104:1 112:19 114:12 241:20 260:6
representatives [7] 33:6 72:3 103:7,16 112:23 116:10 243:8
representing [1] 127:19
represents [4] 75:22 147:15 232:5 261:7
reprisal [2] 67:12 69:3
reproduced [1] 175:1
reps [3] 247:6,8 252:5
reputational [1] 165:25
request [5] 69:21 113:19 197:8 221:23 222:3
requesting [1] 247:19
require [5] 33:25 76:2 100:20 195:25 198:13
required [32] 18:14 22:4 22:7 46:15 48:3,7,23 49:10 50:11,13,18,19 51:19 78:15 81:5,8 98:11 99:14 102:9 113:21 115:9 120:2 129:13,16 135:5 154:1 190:21 197:16,20 203:8 224:13 253:19
requirement [6] 63:7 153:19,23 177:2 185:12 187:14
requirements [49] 2:18 10:10 35:9,14 36:17 52:14 96:5 97:13 98:8 98:12 100:15,24 102:7 107:13 112:17 113:14,17 116:14,19 118:8 124:12 125:9,11 135:6 137:12 172:19 173:2 174:2,6,8 174:10 175:20 176:1 177:7,21 178:1,11,16 179:5,7,17 183:19,23,25 185:5,24 186:2,11 227:16
requires [9] 51:20 52:19 75:25 82:18 96:9 98:25 137:17 208:17 213:17
rescue [11] 183:25 184:3 184:7 186:2 195:25 199:3 199:4,12 206:14 221:3 221:10
research [1] 241:2
reservations [1] 83:14
reservoir [1] 9:12
reside [1] 55:7
resident [1] 56:3
residing [1] 37:12
resolution [1] 71:1
resolve [1] 70:2
resource [2] 175:8 207:2
resources [9] 51:22 80:19 137:7 182:13 202:1 203:2 207:12 208:3 213:1
respect [8] 15:5 126:18 129:22 130:9 225:20 228:9 233:1 254:12
respecting [1] 234:14
respective [2] 80:7 263:9
respond [8] 40:24 182:5 183:17 201:12 216:14 237:6 245:4 249:16
responded [2] 250:20 250:21
responding [2] 150:14 199:2
response [50] 13:6 16:8 40:22 100:22 103:1 118:10,12 119:15,18 120:2,4,25 146:11 182:20 183:12 184:14 185:21,24 194:1,5,10,17 195:5,10 196:10,13 198:3,10,17 199:6 203:1,12,18 205:10 206:12 208:11 209:21 211:3 213:5 214:18 215:9 215:12,22 232:24 235:16 240:13 257:1,5 262:8,18
responses [1] 261:9
responsibilities [3] 52:14 166:10 237:12
responsibility [11] 52:22,24 57:5 86:1 93:4 112:6 122:22 129:7 145:12 199:23 242:1
responsible [17] 8:2,9 14:3 68:2 86:2 112:10 144:16 145:8,15 152:16 169:3 171:3,5 197:1,2 227:22 238:25
responsive [1] 130:17
rest [1] 154:3
restricted [1] 161:14
result [3] 91:10 129:24 167:19
resulted [1] 76:7
results [10] 18:1,4 94:16 244:17 245:6,12 252:8 253:8 254:1,3
resume [1] 70:11
resumption [1] 263:12
retail [2] 17:1 18:23
retraining [1] 178:13
return [12] 16:9 64:4 73:25 208:21 209:5 210:22 248:20,22 249:18 256:23 261:20 262:23
returned [4] 10:12 26:13 224:25 261:18
returning [1] 263:7
review [30] 7:17 44:22 44:25 45:3 75:18 77:4 77:12 84:11,19,19 91:17 95:9,14 96:10 100:18 112:16 115:16 116:21 134:4 137:10 143:18 160:7 171:15 208:20 216:24 232:9,11 234:3 249:11 250:16
reviewed [7] 14:11 24:13 95:16 173:7 241:16 255:13 263:10
reviewing [1] 45:7
revolves [1] 182:11
rewards [1] 92:13
Rick [1] 261:21
rid [1] 181:4
rider [2] 189:16 231:6
rig [24] 9:3,11 10:8 22:22 26:14 27:9 34:1,10,11 67:17 72:24 73:4 88:25 89:22 90:10 95:19 127:3 127:5 145:16 185:4,6 220:9 221:6 222:11
right [59] 4:2 20:20 21:22 25:6 28:8,11 31:15,17 38:3 42:21 44:25 45:17 46:25 47:17 54:9,23 58:19 61:20 62:3 64:6,6 64:7 78:11 90:17 94:10 108:14 118:18 119:17 122:25 126:16 140:13 142:21 146:7 151:12 152:21 155:7 168:16,20 172:6,11 178:3 183:3 188:1 199:15 203:12 204:3 207:15 210:16 223:24 224:6,7 226:24 226:24 234:24 236:17,24 249:21,22 267:16
right-hand [1] 37:21
rights [6] 52:13 61:10,16 61:17 64:6,11
rigor [1] 253:10
rigorous [2] 252:6,12
rigour [3] 133:24 211:5 250:18
rigs [7] 8:6,8 9:20 33:19 72:14 87:12 267:5
risk [56] 13:5 38:24 40:10 46:8 47:12 49:4 52:19 57:6 81:13 112:12 113:4 123:21 135:7 159:14,16 159:19,25 160:3,4,8,11 160:15,21,24 161:1,5,25 162:7,17,18 163:18,24 165:10,12,23 166:3,4,5 166:14 167:17,18 168:13 169:4,12 171:13 180:13 181:10 182:10 201:24 226:21 249:23,24 250:5 250:8,17,24
risks [9] 40:17 47:10 58:21 92:23,24 115:4 165:17,20 250:7
RNC [1] 196:2
road [1] 262:22
robust [4] 112:10 115:13 115:14 128:22
Rockies [1] 16:23
Roil [391] 1:4,5 4:3,4,7,8 4:17 5:13,14,19,22 7:21 11:22 15:3,16 20:23 21:5 21:10 22:15 23:4,8 24:5 24:10 25:16,25 26:7 27:17,23 28:18 29:13,21 30:24 31:9,16,21 32:2,6 32:11 33:3,18 34:23 35:2 35:16 36:5 37:14 39:16 41:1,10,15 42:2,15,22 43:9,18 44:12,19 45:10 45:18 46:1,24 47:4,16 48:8 49:12,17 50:1 51:6 52:6 54:4,8,22 55:1,15 56:6,11,18,25 57:20 58:4 58:10,15 59:15,24 61:24 62:17 63:12 64:16 65:21 65:25 66:4,9,17 68:12 69:4,12 70:8,14 71:13 71:20 72:12,20 73:12 74:2,11,16 75:5 76:9,19 76:24 77:14 78:4 79:7 79:14,21 81:2,11 83:3,8 87:10 88:1,9,18 89:6,15 90:5,16 93:13 94:17 95:4 96:15 97:8,16,22 99:2,9 99:25 100:4 101:6 104:6 105:5 106:1,22 107:23 108:13,23 109:13 110:12 110:19 111:2,9,13,24

113:25 114:4,13,23 116:25 117:7 118:5,13 118:17 119:5,22 120:7 120:19 121:10,14,20 122:1,15,21 123:1 125:12 126:12 127:8 128:1 130:6 130:18 131:6 132:2,8 133:11 134:10,16 135:18 135:25 136:12,22 138:4 138:9,24 139:8,17 140:20 141:2 142:16,22 143:4,9 144:14,20,24 145:6,17 145:23 148:3,8 149:19 150:2,18 151:3,11,15,20 151:24 153:16 154:6,21 155:1,5,14,15,23 156:11 156:16,21 158:7,16,22 159:2,9 162:4,14 163:23 164:6,15,24 165:14 166:20 167:8 168:15 170:9,19 171:9 172:2,7 172:12 174:15,19 176:9 176:14,23 177:9,23 178:18 179:14,21 180:4 180:9 181:13,18,22 182:25 183:4 184:6,13 184:19 185:13,18 186:13 186:22 187:3 188:10,15 189:3 190:18 191:2,11 191:20 192:24 193:8,12 193:16,20 195:17 196:5 196:25 197:18,23 198:7 199:9,16,25 200:6,11,16 202:8,17 203:4,15,23 204:4,22 205:6,19 207:10 207:23 208:14 209:25 210:10,19,24 211:7 213:7 213:19 214:6,25 216:8 216:15 217:4,18 218:21 219:6,24 220:14 223:2 223:21 224:11,17 225:1 225:8,13,18 226:4,18 227:9 229:7,13,21 230:19 230:25 231:11,15,20 232:13,21 233:8 234:16 234:23 235:22 236:2,9 236:16,21 238:4,16,23 239:4,9,23 240:4,24 241:6,25 242:6 243:2 245:25 246:13 249:19 251:7 252:18,23 253:12 253:22 254:10,23 255:2 256:12,20 257:11,17,24 259:3 260:9 262:3,11 263:16 264:19 265:18 266:16,21

role [22] 7:25 11:4 13:1 13:16,25 71:25 75:8 97:3 97:7 144:9 146:3 147:23 154:18 177:6,8,22 179:7 228:3,16 230:11 258:7 258:11

roles [4] 12:9 52:13 194:17 202:15

roll [3] 124:22 190:12,14

rolled [3] 99:17 248:20 249:17

rolls [1] 119:2

room [7] 66:19 107:25 116:10 204:6,10 215:1 260:11

root [3] 135:16,23 136:10

rope [1] 223:7

Rose [13] 8:12 13:25 20:18,24 21:4 28:15,16 187:17 189:24 190:8,23 197:12 257:10

rotate [1] 199:23

rotating [1] 9:19

rotation [6] 9:2 72:10 84:25 85:7 218:20 244:6

rotational [1] 218:19

rotations [1] 244:10

rotor [5] 131:23,24 132:3 132:6,14

roughly [2] 72:8,18

roughneck [2] 9:4,10

round [3] 45:6 252:25 254:6

route [3] 197:11 209:18 257:9

routine [2] 62:8 109:21

routines [1] 237:23

Ruelokke [1] 261:22

rule [2] 165:21 168:17

rules [3] 62:9,25 142:17

run [2] 79:8 226:2

-S-

S [1] 110:5

S-61 [1] 9:24

S-92s [1] 211:20

S92 [2] 234:11,17

safe [17] 25:11 38:19 59:11 75:12 81:23 86:1 112:6,9 144:10 145:14 157:16 161:6,17,21,22 161:25 169:5

safely [4] 46:22 62:9 64:3 228:13

safety [259] 1:11,12 2:20 3:16 6:5,17 7:6,7,9 11:25 12:24 13:4,11,14,23 14:4 14:7,8,15,17 15:8 16:4,8 17:25 18:9,11,15,19 24:20 32:18,24 35:11,13 35:24 36:2,12,12,14,15 36:22 37:3,8,12,16 38:3 38:6,11,13,21 39:5,8,11 39:20,21,22 40:4,5,7,12 41:5,11,12,16,21,22,25 42:11 43:1,6,10,13,21 44:8,9,24 45:1,24 46:4 47:20 49:20 50:3,20,22 51:15 52:12,13,18 53:7 53:12 54:15 58:25 59:7 59:21 60:5,8,13,18 61:2 61:11,15,17 63:22,23 64:8,10 68:8 70:22 71:2 71:5,7,10,12,17 72:1,24 73:4,15,23 74:9,13,14 75:10,15,17 80:3,8,10 82:15,16,23,25 83:4,15 83:20,23 84:6,14,17 85:5 86:4,12,13,23 87:22 88:12,22,23 89:20,24 90:1,6,12,20,25 91:3,14 92:9,12,18,19 93:4,8,9 94:21 95:11 96:8 98:12 98:17 99:6 102:18 104:21 106:7 107:4,5 108:20 110:23 111:10,18 112:23 113:14,17 115:12,19 118:22,24 119:4 122:8 124:10,20 125:10,14 126:7 133:4 135:7 143:2 143:16,21 144:1,5 146:2 146:9,25 148:18 149:2,6 149:11,13,15 150:1,4,11 150:16 151:2,10 153:10 157:5,11,17,19,25 158:25 159:12 160:1,9,21 161:2 163:15,21 165:19 166:4 166:11,15 169:11,14,22 171:16 172:15,23 173:3 173:23 182:2,3,11 184:12 186:12 201:25 213:8 216:24 234:5,6 235:10 239:16 240:9 249:2 255:1 261:2 262:14 265:3,11

Saglek [2] 9:1,1

sailings [1] 221:11

sands [4] 17:5,9,10 18:21

satellite [1] 34:18

satellites [1] 24:1

satisfaction [1] 69:23

satisfied [1] 197:24

satisfies [1] 96:4

satisfy [1] 98:11

saw [3] 34:5 164:18,18

says [10] 62:7 68:14 81:12 83:16 145:7 166:5 168:17 177:19 206:3 211:14

scale [2] 22:18 112:12

scenarios [3] 159:21 182:8,16

scenes [1] 207:18

schedule [3] 124:25 266:23 267:13

scheduled [8] 39:14 84:16 139:24 219:12 222:9 223:23 224:9,12

schedules [3] 92:4 106:11 218:19

scheme [1] 78:14

Schlumberger [1] 10:14

scope [6] 85:3 106:6,18 112:16 209:1 210:1

Scotia [1] 252:4

screen [5] 20:9 54:25 55:23 178:10 255:5

scroll [1] 177:25

scrutiny [1] 104:18

se [1] 226:20

sea [20] 7:3 9:18 10:9 17:2 19:3 20:18 28:14 28:16 161:8,18 187:17 189:24 190:8,23 197:11 221:15 226:12 228:19 231:5 257:10

seal [8] 242:25 245:19,23 245:24 246:1,4,7 247:23

seals [4] 242:24 243:16 245:8,10

search [3] 183:25 184:3 206:13

searching [1] 78:5

seated [1] 244:22

second [15] 1:9 19:20 26:4 33:4 40:7 44:2 57:11 60:12 97:17 219:7 240:3 243:23 252:14 254:6 263:13

secondly [1] 240:13

section [44] 16:10 35:4 35:11,15 41:23 43:2 44:6 44:11,13,22 45:6,9 47:23 49:7 51:19 52:12 54:1 58:23 92:17 95:14 119:21 160:7 165:11 169:1 182:2 182:3,18 183:16 184:1 184:12 186:3,12 194:2,2 194:10 195:4 205:11 217:2,11,15 233:17 239:7 254:25,25

sections [13] 40:6 45:1,8 57:16 61:11 158:4 171:16 171:19 172:1 183:8,14 216:25 239:14

sector [1] 12:9

security [7] 13:5 51:4 51:13,14 95:11 103:18 103:19

see [93] 2:1,2,17 20:10 20:14,20 21:18 22:1,10 23:17,21 26:21 27:13,24 28:9 30:23 33:9,11 37:6 37:25 38:2,24 43:3 47:8 47:22 48:18 49:1,20 50:5 50:17 51:25 52:2,18 54:25 55:24 58:1 60:20 61:20 77:18,25 78:6,20 79:3,5 80:11 81:3 83:21 86:22 87:6 88:14 92:7 93:18 102:15 107:18 109:22 117:9 119:18,19 120:13 132:18 147:18 149:8 152:21 153:22 156:25 164:16 177:13,18 177:24 178:4 182:18 184:2 194:9 198:21,24 200:21 201:5,23 202:3 205:24 206:3,16 208:6,8 209:1,13 217:20 232:6 246:20 248:10 251:13 254:11 267:15

seeing [3] 92:10 102:6 267:3

seek [2] 90:24 244:11

seeking [1] 188:17

seem [2] 4:18 117:15

sees [3] 78:16 83:16 210:11

segregate [1] 42:8

seismic [1] 99:20

select [1] 111:22

selected [3] 114:5 115:24 117:12

selection [9] 38:11,15 75:10 112:3,11,14 115:5 162:21 242:2

self [1] 72:25

semi [2] 31:12 34:20

semi-submersible [1] 31:2

send [5] 60:18 202:24,25 203:8,13

senior [14] 18:11,17 52:21 53:15,21 73:1 125:1 143:14 147:3,8 200:2 214:20 260:5 263:8

sense [9] 11:13 51:16 68:4 93:11 133:25 138:12 196:9 205:4 250:12

sensitivity [3] 6:23 212:3 264:7

sent [5] 8:23 247:11,25 254:5,7

separate [11] 21:20 37:2 37:6,12 72:21,23 100:1 100:3,5 141:17 181:9

series [3] 1:9 50:7 249:5

serious [3] 75:23 135:14 267:15

serve [1] 72:7

service [22] 16:9 48:10 55:23 74:1 87:5 113:5 114:5,6,19 118:8 132:24 206:5 211:20 222:21 228:6,7,9,11 248:20 249:18 261:20 262:24

services [7] 11:16 114:10 146:17 162:13 184:3 185:2 263:12

session [1] 252:4

set [25] 18:12 29:7 47:17 50:11 51:20 61:14 64:23 67:20 120:10,20 129:11 141:17 143:15 164:3 175:5 176:2 192:21 204:20 230:13 239:1 248:2 252:14 262:6 266:18,23

sets [2] 29:5 251:25

setting [4] 48:14 101:19 108:18 146:22

seven [6] 111:4 165:5,5 165:7,7 199:20

several [2] 214:5,10

shaded [1] 198:25

shall [3] 119:25 120:4 227:20

shalt [1] 168:18

shamelessly [2] 88:8,19

shape [1] 249:22

share [12] 85:25 87:3,7 90:20 92:11 128:2,3,11 133:25 137:10 204:12 220:21

shared [8] 7:11 55:23 80:18 82:12 126:19 137:19,20 257:4

shareholder [1] 19:19

shares [2] 93:7 127:25

sharing [12] 8:10 14:1

26:15 91:2 128:5 133:13 133:15 137:7,21 138:2 220:24 249:8
shelf [3] 76:11,12,14
sheltered [1] 192:16
shift [6] 82:14 83:24,25 84:18 85:4 142:25
shifting [1] 137:7
ship [4] 8:21 31:14 174:11 223:14
Ship-to [1] 183:23
shipping [2] 96:6 218:4
ships [1] 234:15
shock [1] 29:20
shop [1] 113:16
shore [1] 183:24
shorter [1] 171:20
shortly [1] 10:14
shot [3] 54:25 55:23 178:10
show [1] 59:11
showed [1] 196:19
showing [2] 196:14 216:19
shown [4] 22:20 109:15 154:7,19
shows [2] 22:5 154:16
shut [1] 237:24
shuttle [2] 36:23 37:10
side [17] 20:9 21:19,22 25:6 27:19 28:9 37:21 55:22 61:21 80:11 119:17 152:21 190:14,14 207:1 207:15 209:14
sides [1] 25:5
sight [1] 161:14
sign [1] 234:8
signature [1] 81:4
significant [25] 12:16 15:21 38:9 44:6 63:5 82:18 88:24 91:4 100:9 116:8 123:13 124:3 130:4 142:18 162:22 185:21 186:8 201:6 202:25 212:14 213:4 243:20 244:2 253:10 262:17
significantly [1] 119:9
signs [2] 102:6 107:8
Sikorsky [2] 9:24 234:17
similar [15] 17:24 24:13 33:5 58:17 67:18 72:18 80:6 98:2 100:24 108:5 137:23 165:1 179:16 188:18 232:8
similarities [1] 2:1
similarity [1] 50:18
similarly [3] 37:9 186:23 191:21
simple [2] 76:20 113:18
simply [7] 2:16 42:13 96:24 115:8 144:16 167:19 204:23
simulators [1] 173:4
simultaneous [3] 37:10 157:23 166:15
single [1] 181:1
sit [2] 52:3 244:25
site [2] 48:20 59:9
sites [5] 59:4 78:6 81:25 92:3 93:5
sits [3] 52:5 156:4 201:6
situation [13] 66:21 67:1 90:2 104:22 108:5 167:9 170:20,22 194:23,25 195:12 208:16 211:9
situations [2] 65:19 230:3
six [12] 40:5 111:4 159:4 182:2,11 183:7 193:25 216:25 238:14 241:21 244:3,5
six-week [1] 240:23
size [9] 88:2,4 192:12 238:12,18 242:2 247:22 249:22 250:11
Sizing [2] 242:5,7
skill [3] 29:5,7 164:3
skills [1] 164:13
skillsets [1] 114:14
Sky [2] 185:12,14
sleep [1] 267:10
slice [3] 50:10 172:21 174:14
sliced [1] 90:14
slide [70] 18:8 20:9,13 20:18 21:13,14,19,22 22:16,18 24:13 28:6 37:22 58:9,24 61:21 63:13 70:17,19 75:21 82:13 83:22 85:24 90:19 96:9 100:10,25 106:20 112:2 113:8,9 117:9 132:19 134:9 135:11 138:3 147:13,14 151:5,9 151:14 152:15 155:7 156:23 157:4 162:19 164:16 167:3 182:1 193:22 196:14,18 198:22 200:21 201:10 205:13,13 208:9 209:2 216:17 220:17 222:7 227:13 231:23 232:4 233:14,16 242:15 246:20 255:6
slides [5] 25:15 126:11 156:24 196:8 203:22
slightly [3] 27:14 36:4 76:6
sling [1] 222:25
slinging [1] 223:10
slot [3] 220:9,11 224:6
slots [3] 219:13,16,19
slow [1] 111:12
slowly [1] 205:20
slung [1] 223:9
small [6] 28:9 77:19 87:17,21 223:3 255:14
smaller [1] 27:14
smallest [1] 87:19
snapshot [1] 177:1
snitch [1] 67:5
snitching [1] 66:24
snow [1] 27:1
so-called [1] 184:7
societies [2] 96:20,23
society [3] 97:12 98:2 106:5
softer [1] 35:18
software [1] 136:5
soliciting [1] 113:10
solid [3] 4:18 147:20,21
solution [1] 131:15
someone [4] 79:4 88:14 206:6 222:1
sometimes [8] 2:25 93:17 123:19 152:3 164:10,19 181:23 221:22
somewhat [4] 102:7 161:3 170:6 260:1
somewhere [6] 52:4 79:1 91:4 211:13 240:1 261:14
Sooley [1] 268:11
soon [2] 257:21 258:3
sophisticated [2] 2:15 87:15
sorry [13] 21:3,3,4 32:5 51:14 61:25 65:22 74:23 80:25 132:6 186:18 193:17 260:5
sort [26] 23:3 27:13 29:22 31:1 33:8 34:4 60:1 67:4 97:3 108:6 111:1 117:10 123:8 149:2 171:23 172:21 174:13 195:8 196:2 198:5 219:1 223:4 224:1 241:9 262:18 266:25
sorted [1] 175:25
sorts [2] 120:14,17
sound [1] 268:7
sounds [2] 145:2 152:7
sources [1] 267:2
south [1] 31:15
space [1] 204:12
spare [1] 34:16
speak [6] 26:1 35:19 74:11 103:22 149:22 214:23
speaking [4] 85:19 149:22 255:6 266:2
special [5] 10:9 11:10 26:14 206:12 237:25
specialists [3] 163:24 218:6 258:14
specialized [3] 181:12 201:22 237:1
specific [32] 16:1 44:13 48:20 55:11 78:23 84:20 85:2 90:2 98:8 100:18 122:11 136:7 137:13,16 140:19 173:5,6 174:9,14 176:5 177:7 179:5,6 189:21 194:9 242:23 243:13,21 244:21 247:16 247:21 261:3
specifically [3] 124:2 142:15 158:10
specifics [2] 74:11 94:9
spectrum [1] 141:5
speculation [1] 92:2
speed [1] 3:22
speeds [1] 189:22
spend [7] 3:23 44:10 49:7 117:2 153:21 172:8 193:25
spends [1] 153:24
spent [1] 12:7
spill [1] 185:21
spillage [1] 24:25
spoke [6] 83:12,24 144:6 160:12,20 232:2
spoken [3] 85:15 108:1 158:18
sponsors [1] 52:23
spring [1] 10:1
St [11] 8:13,24 10:15 12:1 19:14 82:2 102:22 143:14 211:13 268:5,9
stable [2] 27:8 190:21
Stacey [156] 4:9,25 5:3,4 5:12 6:2 7:16,18,19,22 15:14 44:24 45:6 52:10 53:4 57:15 61:9,12 62:2 62:19 63:15 64:18 65:23 66:2,7,14 67:7 68:19 69:10,15 70:4,18 71:18 71:22 72:17,22 73:8,19 74:10,25 75:7 76:17,21 77:1,21 78:12,19 79:12 79:18,25 81:7,16 83:6 83:11 87:24 88:3,11,20 89:12,17 90:8,18 94:2 95:1,6 112:4 125:3 134:4 134:6,13,18 135:20 136:3 136:16,24 138:7,21 139:1 139:15 140:3,10,12,25 141:10 142:9,20,24 143:7 143:11 144:18,22 145:4 145:10,20,25 148:6,10 151:8,13,18,22 155:16 155:20 156:2,14,19 157:2 158:12,20,24 159:5 175:3 175:10 200:15 217:1,5 217:10,21 219:3,10 220:5 220:18 223:5 224:5,15 224:22 225:6,11,16,22 226:9,25 227:12 229:11 229:16 230:6,23 231:3 231:13,21 232:1,18 233:15 234:20 235:4,25 236:7,11,19,23 238:9 239:6,10 261:17,24 264:24
Stacey's [1] 152:22
staff [3] 134:20 201:21 229:18
stage [2] 244:2 254:19
stairs [1] 138:16
stairways [1] 234:9
stakeholder [1] 51:3
stakeholders [2] 201:1 263:3
stand [3] 88:16 222:4 259:21
standard [15] 75:21 174:3,23 176:11,13,18 176:20,21 189:16,18 234:13 237:9 250:16 252:13 253:15
standardize [1] 189:10
standardizing [1] 193:1
standards [23] 11:15 47:23 48:2,13,22,25 49:9 50:15,19 51:24 53:21,25 54:21 95:12 143:22 144:3 146:6 175:5 176:2 249:11 250:23 252:8 255:18
standby [19] 22:5,8 29:11 119:1 186:2 187:5 187:6,12,13,19,25 188:3 188:13 221:2,8,9,19,24 222:3
standing [1] 242:13
stands [3] 65:8,10 188:17
start [20] 1:6 15:18 17:8 35:15 39:19 45:13 67:18 74:24 75:12 83:25 88:5 93:8 111:21 116:7 152:14 156:22 208:10 237:24 240:14 267:15
started [9] 19:9 42:16 217:7 225:4 248:19,21 249:17 259:1,10
starting [3] 38:22 63:11 81:18
starts [7] 38:6 46:12 63:23 113:10 115:2 225:2 242:10
state [4] 5:2,7 161:8 226:12
statement [2] 46:25 155:21
states [4] 161:18 221:16 228:19 231:5
station [2] 48:10 157:14
stations [1] 17:1
statistics [2] 68:9 118:22
Statoil [2] 21:17 26:16
status [4] 77:12 129:9,22 255:19
stay [5] 9:4 22:3 32:19 110:5 215:7
steadily [1] 220:9
steal [1] 88:8
steel [1] 223:15
steer [1] 219:18
Stena [1] 31:17
step [4] 243:7,22,23 256:5
stepback [3] 81:13,17 88:15
steps [7] 81:19 113:6 166:1 209:10 243:7 245:3 262:12

steward [4] 8:21 51:23 52:25 146:3
stewarded [1] 94:15
stewart [1] 137:4
sticks [3] 94:20,23 264:5
stiff [1] 242:23
stiffness [2] 245:10,20
still [15] 27:15 33:1 42:3 87:20 93:4 101:20 104:3 110:25 111:5,8 140:15 225:23 263:18,20 264:1
stitch [1] 91:10
stolen [1] 88:19
stop [5] 33:21 41:2 63:19 93:22,25
stopping [1] 63:17
storage [1] 19:24
storeys [1] 24:19
story [1] 240:15
straight [2] 70:1 149:10
strap [1] 29:25
strategies [1] 146:18
strategy [7] 47:9,9,17 95:10 113:10 115:1 172:17
stream [1] 117:14
streamline [1] 3:18
streamlining [3] 99:23 101:14 105:14
Street [1] 268:5
strength [1] 17:23
strengthened [1] 38:18
stress [1] 215:4
stressed [1] 157:8
strict [1] 60:1
stringent [1] 56:23
strive [3] 91:5 143:24 228:16
strives [1] 218:18
striving [1] 91:25
structural [3] 132:17 234:4 235:9
structure [27] 2:13 20:10 35:25 45:8,12,14,15 104:25 120:21 134:5 138:6 143:1 152:5,6,11 153:14,15 190:25 194:4 194:14 195:11 203:11 204:7 211:6 212:12 234:8 235:11
structured [5] 162:23 163:4,19 166:24 167:6
structures [1] 107:3
struggling [1] 252:15
stuff [3] 201:19 207:16 256:11
style [1] 2:3
sub [1] 50:8
sub-element [1] 50:15
sub-elements [2] 50:7 51:17
subcommittee [2] 14:7 149:15
subcommittees [1] 13:24
subject [6] 53:23 96:5 98:4 102:10 189:4 263:20
subjectivity [1] 231:10
submersible [1] 31:13
submitted [1] 90:4
subsea [3] 157:15 180:18 181:7
subsequently [1] 130:8
substantive [1] 89:3
succeed [1] 6:19
succession [2] 194:12 194:16
such [16] 8:11 63:9 64:13 75:19 78:22 80:4 96:23 98:5 107:19 146:16 147:23 157:13 173:21 188:4,24 194:16
suffer [1] 215:4
sufficient [1] 259:5
suit [27] 158:9 240:16,20 240:21 241:24 242:9,19 244:10,19 245:20 246:18 248:5,14,21 249:8,21 250:14,21 251:17 252:1 252:14,14 253:3,3,6,8,9
suitability [1] 237:20
Suite [1] 268:5
suited [2] 26:24 237:6
suits [31] 11:10 16:7 74:5 98:22 158:13 239:15,17 239:18,21 241:10,16,22 243:17 244:3,12,20,25 248:11,18 249:6 250:19 250:21 251:1,11,20 252:10 253:10,19 254:12 254:18,22
summarizes [6] 40:16 40:19 159:12 242:15 249:14 254:3
summary [4] 98:16 194:3 245:11 254:1
Sun [1] 17:7
Suncor [84] 3:9 5:23 8:6 11:25 13:14,23 14:7,17 15:8,25 16:3,12 17:6,12 17:15,19 18:20,25 20:4 20:4,11,14,19,21 21:3 26:15 31:24 32:14 42:1 42:8 63:6 73:2 83:9 84:12 85:25 86:3,6 89:19 91:2 98:1 99:7 100:11 100:21 101:3 111:18 112:5,10 115:10 116:9 125:17,22 126:10,14 127:12 128:16,20 130:22 130:23 135:3 137:11 138:15 139:24 141:14 143:12 150:17 163:24 164:25 165:21 202:13 209:3 211:18 218:17 220:1,8 222:9 227:13 228:7 229:14,18 242:11 243:6,12,14 264:23
Suncor's [18] 6:3,5 7:23 13:7 16:8 17:4,9,23 31:25 64:9 101:4 131:20 132:11 134:19 169:1,16 210:2 243:13
Super [1] 234:21
superintendent [1] 11:2
supervise [1] 218:7
supervisor [2] 10:7,25
supervisors [2] 63:18 70:4
supplements [1] 184:22
supplied [1] 221:2
supplier [4] 123:23,25 125:7 128:20
supplier's [1] 125:9
suppliers [2] 122:12,20
supply [15] 28:1,7,10 29:11,19 30:2 116:24 119:2 127:17 146:16 148:19 187:11 196:20 223:16 260:19
supplying [1] 117:13
support [68] 6:20 8:3 10:18 11:6,18 12:13 13:7 19:17 33:19 40:23 54:20 64:10 67:24 80:2,9 86:14 88:24 130:24 133:12 134:24 136:20 146:16 149:7,17 162:12 182:19 182:22 183:11,15 184:11 185:2,8 186:1,12,15,17 186:24 195:15 197:16,19 198:14,20,21 202:1 204:8 205:3 206:21,23 208:13 208:25 211:4 212:11,18 213:2,14,17,18 214:2 215:13 217:12 228:11 229:5 234:8 257:5 258:8 258:12 259:13 265:13
supported [1] 217:23
supporting [7] 55:13 71:9 98:13 191:9 228:25 235:10 259:19
supports [8] 13:9 42:4 67:23 154:13 214:1 215:23 228:1,5
suppose [3] 15:7 23:11 266:1
supposed [5] 53:17 78:15 163:7 179:11 267:7
surveillance [1] 96:11
survey [8] 235:16 243:24 244:14 245:5,6,11,12 254:17
surveys [5] 71:8 103:21 103:25 106:8,16
survival [1] 178:9
suspect [2] 87:15 180:5
suspended [1] 223:8
sustain [1] 18:15
sustainability [1] 18:7
sustaining [1] 72:25
swiss [1] 251:5
switch [3] 59:11,19,22
sworn [4] 4:11,24,25 5:5
synergies [3] 104:22 105:10 133:14
synergy [2] 204:23 205:5
Syria [3] 17:3 19:5 48:6
system [68] 3:6 27:6 29:25 36:15 37:19 41:11 41:16,18,22,25 43:7,10 43:12,13,15 44:16,24 45:24 46:5,8,12 47:21 48:1 50:5 52:5 55:6,8,10 56:17 57:7,10 61:16 64:10 66:10 67:17,18 70:20 71:10 77:24 88:23 89:1,10,11,21,24 90:1 102:18,23 103:4 105:12 115:12 123:11,13 124:20 126:7 133:4,22 135:12 140:16 141:9,14 142:11 152:24 162:22 169:15 170:2 177:4 185:12
systems [40] 1:10 2:15 2:19 12:13 18:14 23:25 24:4 32:16 38:20,22 39:8 44:9 49:21 50:25 52:3 52:17 53:8 54:11 64:13 67:19,22 80:8 90:12,24 107:2,3 108:20,21 124:10 125:10 137:5 139:3 157:14,17,23 166:17 169:11,22 183:19,23

-T-

takes [9] 29:19 63:5 156:23 158:14 166:17 205:2 224:19 231:10 256:9
taking [5] 28:16 81:19 105:22 106:17 193:2
talks [2] 64:14 112:2
tall [1] 79:8
tanker [10] 22:2 23:11 23:14,23 24:3 28:11,12 28:13 37:10 40:3
tankers [4] 21:25 22:3 36:23 196:21
TapRoot [4] 135:15,19 135:21 136:18
Tara [1] 268:5
target [5] 129:5,10,12 129:14,15
task [6] 12:12 14:9 62:23 73:21 80:14 141:20
tasked [2] 207:13 228:14
team [62] 10:19 13:2,7 14:8 47:14 50:12 52:22 53:14,16,22 67:24 75:16 106:18 112:15,15,19,24 112:25 115:17 122:10 125:2 127:17 129:19,20 130:23,23 132:11 143:14 146:13 147:2,5,8 148:13 150:1,10 153:4,7 178:12 179:1 197:17 199:20 201:5,13 202:16 206:10 206:12,25 207:17 208:8 209:21,22 213:5 214:19 228:14 236:25 237:1,5 238:5,7,15,17,18
teams [16] 12:19 13:19 47:15 63:10 92:21 146:16 194:11 201:7,16 202:15 207:2 218:7 227:25 228:24 238:12 258:15
technical [11] 110:1 112:19 114:11 117:23 132:12,17 133:22 163:19 164:13 167:6 170:2
technician [1] 177:16
technicians [1] 206:14
techniques [1] 136:7
telling [1] 48:13
tells [2] 179:25 210:12
temperature [2] 163:8 163:9
ten [12] 12:15 50:6,16 72:8 106:13 178:14 179:2 179:4 180:10 188:17 238:8 265:21
tend [4] 93:18,20 205:16 209:8
tends [1] 205:18
term [15] 12:14,21 49:13 58:11 64:15 83:7 84:3 88:6 116:17 140:18 144:23 182:24 201:17 219:14 223:1
terms [58] 2:2 26:20 32:13 33:13 35:10 41:3 41:5 45:12 49:5 50:20 60:13 70:22 72:7 97:14 98:17 100:25 108:17 109:11 116:1,15,16 118:8 118:20 125:7 131:8 145:2 152:22 153:12,12 154:2 160:18 162:6 163:7 170:14 173:14 174:7 176:21 178:15 183:15,24 185:11 187:8 188:1 189:23 190:11,12 195:10 196:16 199:6 204:8 216:22 223:25 226:5 233:13 244:7 255:6 260:17 262:21
Terra [70] 6:1 11:3 12:13 12:19,20,20 13:17,21 16:1,4,6,7 19:10,11,17 19:19,20,23,25 20:14,16 21:16 25:18 26:10,13,18 27:15 33:13 34:5 36:13 36:22 39:11 40:20 43:5 54:15 70:21 71:23 95:15 95:19 96:13 99:5 103:20 117:13 122:11 128:9 131:8 144:8 147:24 152:17 154:5 159:13,16 160:8 171:8 172:22 173:23 174:10,14 187:17 189:23 196:23 219:22 225:19 233:21 239:21 242:14 247:16 255:1 261:6,19
territory [1] 227:19
test [7] 40:11 108:11 109:7,8 252:6,6,9
testified [1] 244:13
testimony [3] 7:15 157:7 160:12

testing [14] 249:9,9 251:1 251:19,22,25 252:11,12 252:15 253:2,8,11,13 254:7
tests [1] 235:13
text [1] 195:19
thank [24] 5:7,11,15,20 14:25 15:2,4 34:24 56:19 106:2 143:10 155:7 159:10 176:24 181:19 217:5 239:10 256:21 264:20,25 265:15,17,19 267:16
Thanks [3] 7:20 61:13 134:7
theirs [1] 232:20
Themology [1] 229:18
themselves [3] 62:1 69:1 74:6
thereafter [1] 10:14
therefore [4] 46:21 96:1 109:4 161:3
they've [10] 63:21 91:20 93:21 104:4 132:14,16 132:16 178:12 217:20 242:11
third [4] 33:16 44:3 178:6 244:17
thorough [1] 112:16
thoroughly [1] 218:15
thou [1] 168:18
thought [3] 150:23 182:15 255:9
three [29] 1:10,14,18 8:17 29:19 37:22 59:17 61:20 72:9 84:9 86:15 95:20 99:1 101:3 102:13 106:16 109:10 125:8 153:8 157:4,19 164:10 198:6 199:21 233:22 243:6 244:9 245:3 260:3
through [59] 3:10 12:20 14:24 15:22 18:2,5 33:17 33:20 34:21 37:20 38:11 41:23 42:7 43:1 44:11 49:7 50:17 51:8 56:4 57:16 59:6,13 61:10 63:11 68:10 69:18 70:3 70:5 71:8 91:16 97:11 97:12 98:12 110:1 113:23 117:21 118:6 142:2 144:3 146:10 149:14 158:14 164:2 168:2,3 173:12,19 177:19 182:9,15 205:21 207:13 209:10 216:25 218:9 226:2 240:10 248:19 254:2
throughout [6] 11:13 82:1 116:17 143:24 166:1 258:18
thruster [2] 24:22 189:25
thrusters [1] 189:25
ti's [1] 81:8
tie [3] 34:18 146:1 196:2
tier [5] 198:5,5,5,10,14
tight [3] 161:16 242:24 247:24
timely [2] 75:25 135:7
times [9] 62:25 75:14 80:16 93:22 120:4 164:10 185:11 222:22 244:8
timing [5] 126:5 143:10 223:25 228:23 240:17
tip [2] 223:11,14
TLM [8] 46:6,11,15 50:19 53:1 54:20 136:21 255:18
Tobago [2] 17:3 19:6
today [12] 1:20 6:7 7:12 15:24 26:1 32:1 33:11 68:9 200:14 255:16 264:24 265:15
toe [1] 76:15
together [10] 43:25 86:4 87:7 111:20 123:10 124:25 146:1 206:10 260:1 267:4
tolerance [1] 161:16
tomorrow [2] 266:17 267:7
too [17] 2:3 23:24 31:6 32:12 82:5 101:13 104:16 104:17,23 105:18 139:13 163:8,9 198:4 213:9 217:17 241:8
took [6] 10:13 99:5 168:16 225:14 243:6 245:3
tool [10] 64:14 78:8 135:15 165:1,2,4,8,9 166:24 175:8
tools [17] 65:3 68:21,25 93:1 123:12 162:17,20 162:24 163:19,19 164:4 166:8 167:2,4,6,22 169:23
top [8] 20:13 47:20 146:7 178:5,6 198:24 199:8 209:1
topic [1] 195:8
topics [2] 16:1 194:9
topside [1] 107:3
Toronto [3] 211:12,15 211:16
total [11] 44:23 46:6,7 48:1 51:20,24 72:10 89:18 95:9 146:4,5
totally [2] 30:20 153:9
touch [5] 51:11 158:18 194:7 200:25 205:12
tough [1] 42:8
tours [1] 74:21
towards [1] 124:17
tower [1] 223:20
towers [1] 223:12
town [4] 261:16,20 263:5 264:10
TP4414E [1] 234:13
track [10] 65:6,14 77:12 77:16 91:19 128:22 129:2 138:14 139:4 218:5
tracked [1] 77:24
tracking [5] 65:12 132:23 139:6 146:21 261:25
tracks [1] 185:14
traded [1] 16:17
traffic [1] 182:21
tragedy [5] 6:15 14:22 75:22 141:11 265:10
tragic [3] 6:7 257:7 265:5
trained [6] 136:6 200:9 215:17 216:10 217:24 221:3
training [48] 8:23 10:9 11:15 39:9 40:19 75:20 136:5 172:18,25 173:2,3 173:6,9,10,13,13,16,25 174:1,4,5,8,9,14,23 175:5,14 176:11 177:2,7 177:16,21 178:1,3,8,9 178:17,19 179:1,2,4,17 197:17 233:20 237:1,9 237:10,11
transcribed [1] 268:6
transcript [1] 268:3
transfer [7] 29:4,10 194:20 195:2 221:14,18 259:15
transfers [1] 30:6
transit [1] 257:13
transition [2] 32:13,17
Transocean [3] 25:24 89:19 236:12
transparent [2] 92:1 103:3
transport [26] 29:12 30:5 95:21 96:7 98:4,7 100:12,23 102:11 103:24 106:7 133:3,8 168:7,17 169:20 170:15 218:12 222:18 227:21 228:12 234:12 235:7 258:22,22 259:24
transportation [27] 16:5,7 22:12,13 29:1,17 73:17 74:5 75:2 98:22 106:24 138:15 150:5 158:2,9,19 162:7 211:17 217:3,12,22 226:16,21 228:8 239:15 242:18 249:1
transported [1] 218:16
transporting [2] 227:1 259:2
traumatized [2] 216:2 216:7
travel [4] 73:18 98:21 213:15 263:19
traveller [1] 213:20
trends [1] 137:10
triangle [8] 46:4 47:8,22 48:18 54:1,7 57:3 136:21
trigger [3] 167:16 198:1 211:8
triggers [1] 198:12
Trinidad [4] 11:6,9 17:3 19:6
trip [1] 8:24
tripped [1] 138:16
trips [1] 10:17
true [1] 268:3
try [10] 2:24 3:18 41:3 93:11 94:13 217:17,19 240:11 245:15 251:16
trying [14] 2:8 38:4 60:23 86:20 92:6 138:12 177:20 189:9 211:9 230:1 243:10 243:19 245:18 250:4
tunnels [3] 25:7,9 38:20
turn [4] 28:17 161:24 210:14 217:1
turnaround [1] 152:20
Turner [3] 160:10,20 164:18
turns [1] 210:4
turret [1] 190:3
twenty-nine [1] 233:24
twice [5] 164:9 171:25 217:19 221:12 246:12
two [66] 4:22 9:20,22 22:23 23:1 24:17 25:22 29:8,9 30:6 33:24 35:17 36:2 62:22 72:7,9 74:21 74:22 87:5 93:14 102:1 106:16 107:16 108:12 109:2,9 111:20 121:2,21 122:14 139:12 147:2 154:11 157:4,10 171:16 180:25 181:9 182:12,14 183:8 191:3,9,16 192:10 198:5,14 204:24 205:9 206:16 209:17 218:9,23 226:10 229:1,1 238:8 239:13 240:10 243:9 244:6,9 251:25 254:8 260:21 263:14
two-tiered [1] 164:25
type [16] 34:12 60:6 75:23 103:17 107:11 114:19 153:10 167:7 179:23 192:4 198:21 215:18 216:14 221:23 229:19 231:9
types [13] 60:17 96:18 124:11,23 153:5 164:12 170:1 173:13,15 192:13 195:24 209:9 237:13
typical [3] 73:10 106:15 232:3
typically [17] 27:3 29:4 33:24 34:7 112:19 116:6 116:18 162:20 167:23 168:2 180:17 187:19 190:10 214:19 216:13 223:7 244:6

-U-

UK [1] 131:2
ultimate [1] 120:22
ultimately [19] 13:13 39:1,10 49:2 59:13 135:23 168:5,8,23 197:5 198:17 213:11 230:17 248:19 249:16 251:18 255:12 259:11 261:12
Um-hm [2] 138:8 139:16
unable [1] 194:14
unacceptable [2] 161:25 165:11
uncommon [1] 197:9
uncovered [1] 136:25
under [19] 17:15 26:14 36:18 37:12 51:19 52:2 53:13 55:23 76:6 95:19 97:25,25 99:8,16 119:21 189:4 225:24 227:20 252:7
underneath [3] 201:4 223:6,9
undersigned [1] 268:2
understand [33] 5:16 59:16,17 62:9 67:9 68:3 86:19 103:9 107:24,25 111:14 133:23 139:18 141:23 152:3 155:17 186:16 209:11,19 210:1 212:2 224:14 226:6 232:17 237:17 240:12 243:10,19,25 245:16,19 247:22 251:16
understandable [1] 264:7
understood [5] 118:1 121:11 160:1 249:15 250:7
undertake [1] 166:19
undertaken [5] 40:16 159:13 161:10 226:3 227:15
undertaking [1] 113:20
undertook [1] 249:16
undue [2] 226:21 230:3
unfortunate [2] 14:22 263:18
unified [1] 198:23
Union [2] 261:5 262:14
unique [3] 20:5 83:9 193:15
unit [16] 13:1,12,18 18:23 19:1 21:21 22:20 31:5 47:15 48:19,23 53:23 131:5 142:3 147:9 181:1
United [2] 19:3 259:13
units [2] 55:24 130:25
University [2] 8:14 12:2
unless [5] 15:4 70:15 216:16 232:25 267:14
unlike [2] 12:4 21:23
Unlimited [2] 268:12,14
unload [1] 218:3
unprecedented [1] 262:5
unprotected [1] 79:10
unsafe [1] 58:19
unusual [1] 210:18
up [68] 3:5,25 9:20,21 23:15 27:10 28:14,17

35:19 44:10 49:23 53:17 59:11 61:14 67:20 70:1 71:16 72:2 74:8 75:3 76:1 77:7 82:21 96:17 101:8 109:18 110:14 117:24 119:3,7 120:4,10 120:20 126:2 136:8 140:15 141:17 145:22 150:15,21 156:8 168:12 170:21 174:21 179:15 188:8 189:1,6 193:21 198:24 199:7 200:23 204:20 215:8 221:16 223:17,19 237:24 239:16 246:1,2,12 247:24 248:12 250:9 252:24 255:4 266:23
up-to-date [1] 55:12
update [4] 39:14,17 53:11 129:8
updated [4] 39:1,12 99:6 178:21
updates [2] 129:9 261:2
upset [1] 214:17
upstream [3] 9:13 16:18 48:11
upwards [3] 23:2 106:17 180:21
urgent [1] 62:8
US-based [1] 17:6
used [22] 22:10 41:18,25 42:13 83:5 87:19 88:23 94:23 101:7 114:10,19 133:15 135:15 159:20 166:25 182:24 203:25 215:24 217:12 219:14 222:25 234:22
useful [3] 2:23 78:8 193:3
using [7] 1:14 19:23 117:22 128:12 139:10 163:3 230:10
usually [2] 78:24 86:10
utility [1] 107:4

-V-

valid [1] 11:9
valuable [1] 86:5
valuation [1] 160:14
value [1] 59:1
values [1] 17:23
variety [11] 6:25 12:9 38:24 83:22 99:14,16,21 127:14 173:12,24 193:2
various [9] 1:17 3:13 14:4 22:23 106:11 118:6 173:19 189:20 208:15
vary [5] 24:6,9 107:11 107:13 238:12
varying [1] 45:23
vast [2] 3:11 68:23
vehicle [3] 84:13 86:6 87:7
vendor [1] 173:5
venture [1] 131:18
venture's [1] 148:1
ventures [1] 170:4
verifying [1] 96:2
Veritas [1] 236:18
versed [1] 102:23
version [3] 55:12,19 156:5
versus [4] 108:4,7 196:1 196:1
vertical [2] 99:20 190:13
vessel [53] 19:25 22:8 24:19,23 25:4,6 28:7,10 29:19 72:5 84:4 96:1 98:10 107:1 157:14 161:11,17,20 182:21 183:20 185:9 186:1,15 187:11,19,24,25 188:3,6 188:22 189:23 190:3,9 190:11,21 191:13 192:18 192:23 193:6,7 194:25 218:16 221:9,11,19 222:3 222:4 223:16 228:19 259:2,12 260:12,19
vessels [27] 22:5 27:24 28:3 29:11 73:18 74:6 95:23 119:2 185:15 186:17,19,23 187:6 189:1 191:10 218:3 220:22 221:3,4,8,13 258:21 259:5,6,10,23 260:7
vest [1] 11:11
via [1] 9:1
vice [2] 147:6,22
vice-president [5] 13:13 143:13 147:11,19 149:9
view [8] 56:19,20,22 63:22 67:4 92:11 147:17 230:3
vigilant [1] 265:6
virtue [3] 127:23 241:4 251:10
visibility [1] 153:19
vision [1] 17:19
visit [3] 85:21 92:3 154:1
visitation [1] 154:2
visiting [1] 82:8
visits [4] 78:7 92:5 153:24,25
Visual [1] 46:2
voice [2] 35:18 183:24
void [2] 82:20,21
Vokey [140] 4:6,9,11,20 4:24 5:12,15,17,21,25 7:20,21 11:23 14:20 15:10,17,20 21:2,8,12 22:25 23:6,13,18,22 24:8 24:12 25:20 26:3,9 27:21 28:5,20 29:3,16,23 30:12 30:17 31:3,11,19,23 32:4 32:9,20 33:12,23 34:25 35:5 38:17 45:1 53:2 69:14 72:24 79:9 95:7,8 97:6,10,20,24 99:4,11 100:2,7 101:7,16 105:1 105:7 106:3,25 108:8,16 108:25 109:16 111:16 122:5 123:6 125:2 140:23 145:8,13 148:4 152:13 153:25 154:10,24 155:3 159:1,7,11 162:10,16 164:1,8,22 165:3,22 166:23 167:21 168:19 170:12 171:7,11 180:2 180:11 181:15,19 187:18 188:12,20 189:14 190:20 191:8,14 192:1 193:5,10 193:14 194:21 196:18 200:15 203:21 221:21 231:4 233:6 238:11,20 239:2 256:22,25 257:14 257:20 258:1 259:8 260:15 262:9,20 263:24 264:21
Vokey's [2] 144:9 147:23

-W-

wait [3] 124:21 130:1 266:7
wake [1] 53:17
walk [4] 42:25 113:23 205:20 240:10
walkways [1] 234:9
wall [1] 25:11
walls [1] 25:2
War [1] 10:11
warning [2] 213:22,23
warnings [1] 211:22
watch [2] 93:20 185:9
watching [2] 1:13 107:25
water [10] 27:10 181:3,8 188:9 235:15 249:9 251:22,25 252:8 253:14
waters [2] 192:17 227:19
watershed [1] 156:24
wave [6] 189:7,10,16 191:25 231:6,7
waves [1] 231:5
ways [7] 29:9 80:9 173:12,24 232:8 265:10 266:22
wear [1] 11:9
wearing [1] 244:10
weather [30] 27:9 39:4 139:22 161:8,10,23 162:8 167:11 186:5,6 189:4,7 189:12 190:11 191:6,24 193:1 210:4,5,7,17 221:15 226:7,11,23 229:25 237:16,19 266:24 266:25
web [1] 78:6
week [17] 7:15 14:12 15:23 22:3,12 72:9 74:21 106:17 110:11 164:9 199:24 200:15 221:12 224:3 254:8 258:5 263:13
week's [1] 160:14
weekly [3] 80:24 153:3 219:12
weeks [7] 59:18 74:22 84:9 108:12 109:2 241:21 260:4
wells [9] 5:22 7:21 8:3 10:19 11:22 19:12 21:23 34:3,8
west [1] 175:4
western [6] 7:3 10:12 16:23 18:22 131:24 175:11
what-if [3] 163:1,4 167:3
what-ifs [1] 167:5
whatnot [1] 32:19
Wheels [1] 120:4
whereas [2] 107:15 170:16
wherever [1] 41:19
whichever [1] 24:23
whimsical [1] 181:23
White [4] 8:12 13:24 20:24 21:4
whole [3] 6:14 187:5 189:6
wholesale [1] 18:23
wide [4] 84:15 126:22 176:11 193:2
widest [1] 263:4
wife [1] 8:16
willing [1] 166:3
wind [5] 18:24 26:25 188:22 189:21 228:19
window [1] 188:21
Windows [1] 56:7
winds [2] 161:19 267:4
wing [8] 8:24 131:23,24 132:3,6,7,14 139:13
winnings [1] 115:6
wire [1] 223:7
wise [1] 266:14
wish [5] 2:21 103:12,14 152:8 255:5
within [37] 7:1 14:12 36:13 37:19 41:25 52:20 53:1,19 57:6 60:9,17 83:5 104:25 112:25 114:14,21 119:11 122:16 122:22 127:17 141:8 147:3 149:3 162:18 163:25 168:6 175:23 176:6 187:20 201:7 202:15 214:21 219:1 221:20 227:18 242:11 254:7
without [7] 8:23 14:14 23:23 69:3 139:11 165:2 222:13
withstand [1] 253:10
witnesses [2] 165:15 186:16
wondered [1] 266:23
word [2] 42:10 58:1
wording [1] 120:17
words [10] 62:12,20 94:23 97:1 120:25 122:9 127:10 180:10 187:15 259:18
worked [16] 1:24,25 9:8 9:9,20 10:13,16,24 11:2 69:8,9 84:1 175:4 203:10 204:1 206:15
worker [13] 61:16 64:5 64:11 65:1 69:19 72:2 100:19 103:7,17 173:21 187:23 255:25 256:16
workers [19] 25:8,12 62:3 63:19 64:20 68:6 69:6,7 71:9 78:25 103:9 103:10 138:23 173:8 217:25 218:20 261:10 263:6,23
workforce [36] 7:7,10 59:6 61:22 62:1,21 63:24 68:5,10,24 74:15 78:18 78:18 82:13 83:2,5 84:17 85:13 88:22 90:23 139:4 141:16,22 142:13 156:6 215:10 243:18,21 245:7 253:24 254:9,12 258:18 263:19,21 265:4
workforces [1] 82:17
workovers [1] 34:8
workplace [7] 63:25 71:5,8 81:18,23 112:7 228:13
works [8] 79:4 80:9 93:5 148:23 207:9 219:4 255:23 266:22
world [16] 2:14 15:9 55:24 57:13,15 108:11 126:22 140:7,19 154:4 165:5 170:5 244:5 248:25 266:10,22
worried [2] 53:18 207:16
worry [1] 217:9
worse [2] 178:24 179:3
wrap [1] 239:15
wrist [2] 242:24 245:10
written [3] 54:14 85:22 116:23

-X-

x [1] 88:15

-Y-

year [25] 6:9 17:14 39:19 53:11,21 99:10 101:25 102:5,14 106:9,14 107:17 109:7 116:22 123:7 124:4 124:5,7,15 125:25 153:24 178:15 179:1 186:8 263:17
years [23] 6:24 7:25 8:1 12:7,15 19:9 25:18 31:1 33:14 60:7 67:15 69:8 72:7 99:1 102:1 107:16 109:10 125:18 132:13 178:24 179:3 212:25 215:24
yellow [1] 209:2
yesterday [2] 41:4 152:1
yet [2] 21:6 263:17
younger [1] 69:5

yourself [1] 162:6

-Z-

zero [18] 57:18 58:7,11 58:24 59:1 60:20 61:5 63:9 67:16 80:1,8,20 81:23 82:6 85:23 92:14 93:6 255:17
zip [3] 244:19 245:1 246:18
zipper [5] 245:1,9,17 246:1,6
zippers [4] 242:22 245:15,20 246:4
zipping [1] 242:18
zone [1] 221:10
zones [1] 39:5