

GLOBAL SUPERYACHT FORUM 2006

Conference Day 3 — 15th November 2006

Helicopters Forum

Capt Alan Veale	Helideck Certification Agency
Nigel Watson	HeliRiviera
Ian Lardener	MCA
Nick Gladwell	Regs 4 Yachts

Martin Redmayne

Good morning everyone. Obviously you were behaving yourself last night. As Andy Gifford said this morning it's very rare to get something free from a Scotsman, so we'd like to thank Royal Bank of Scotland last night for their enjoyable whisky and even more surprisingly we got something free from a Bank.

The first session this morning is obviously the Helicopters Forum, as you can see. Before I introduce the panellists I wanted to make a point that today we have an interesting approach where we've got some split sessions. I wanted to make sure that you're aware that for those who are wanting to attend the Sailing Equipment & Systems session after this one, it's taking place in Room A, which is upstairs to the left hand side when you get to the top of the stairs. It's a smaller room for about 200 people and it's quite a nice intimate setting. Tork will be chairing that session at 11.30, then this afternoon we have the Systems and Software forum as well, up there, while the Paint Forum takes place in here. So after the first tea break we have Project Management in here, and Sailing & Systems upstairs, and again this afternoon at 4.30 we have Systems and Software upstairs and the Paint Forum in here. So the choice is yours, obviously.

Tork

And also just to mention that we are also going to be able to take questions by text and email upstairs, just as we have been doing down here.

Martin

Which has been fun. I'll also point out we have three wonderful girls again, we have Ulissa, Isabella and a new girl today is Lottie, whom I met in Monaco and she's the reason the girls are here, so thank you Lottie.

On my right I have Nick Gladwell again. Wonderful Nick from regs4yachts. Ian Lardener, the smartest man from the MCA I've ever seen. He is the new—I think I'm going to call him the LY3. then we have Captain Alan Veale from Helideck Certification Agency and the infamous—or famous, I should say, because I was told infamous was an insult—Nigel Watson of Golden Shadow fame, and now HeliRiviera. All of whom have a considerable interest in the helicopter world and we hope to hear some exciting developments on the new MCA annex and various developments from that side. I'll hand straight over to Ian, who's going to start the proceedings coming to the podium here. Ian thank you.

Ian Lardener MCA

Thank you very much, Martin. As Martin said I'm from the newly formed MCA Fishing & Code Vessel Safety Branch. For the past two years I've been responsible for developing standards for helicopter landing areas on large yachts in LY2. Firstly, why develop such standards? Well, at about the time we were launching LY2 at Monaco in 2004 we had a lot of contact from industry saying they had problems complying with the current guidance and regulations and the current Section 24.2 of LY2. We obviously wanted to do something about that so we wanted to set up a study group to look at the issues involved and try and resolve them. Firstly, who's in the study group. There's a list of all the contributors. Thank you very much to everyone who has contributed. What we wanted to do was develop a group that was small enough to produce a document in a relatively short period but broad enough to be able to get enough experience in both the maritime and aviation worlds, in terms of builders, designers, consultants etc. We hope that we've achieved that very well. I apologise to anyone that feels they were missed out on the study group but I hope you appreciate our reasons for keeping it a task force rather than a committee. Of course in addition to those people we have the UK regulators here. Not only ourselves, MCA Code Vessels safety, but also very important, the UK Civil Aviation Authority. Throughout the two years of development we've worked very closely with the CAA to make sure that we're complying or following the current industry best practice. So what do we want the study group to do? There's our mission. Quite simply, we wanted to improve what we had in LY2. Industry told us it wasn't good enough so we wanted to do something about it. How did we want them to go about that? Well, we wanted to create a document that was not another version of CAP437 but we didn't want to start from scratch, because we thought it was a silly idea to do that because there's a lot of guidance already out there. Basically what we did was take CAP437, take the best bits out of it, the most appropriate sections relevant to large yachts, tweak them slightly to make them appropriate. The main points of interest—the 5 main technical points that were brought out by the study group's first meeting are outlined here. They're quite obvious and I'm sure most of you have come across these before. Obviously the applicability of the text became an issue later on and it gave the study group a bit of a steer because we started to look into all sorts of helicopter operation sides which really we didn't want to look at, or we didn't consider LY2 should be looking at. So let's get started then. My aim for this morning is to run through those 6 points and briefly outline what we found or what you told us was the issue and how we believe we've dealt with it.

Starting with landing area size. I'm sure you'll all recognise this 1D minimum for platform size or landing area size. There's a definition of D there. We must stress that that is the current industry best practice, based on experience and research and what we must follow. It's the current guidance. That's what it looks like, there's a 1D platform. The inner dotted circle there, the smaller one, is in fact the aiming circle and I hope you note that this is off set in this diagram. Now that's only allowed for platforms or landing areas that are over 16metres—the sort of platforms we're talking about it should be central. So what are we going to do about landing area size and the issue of trying to meet it. Obviously we recognise that even with the best engineering minds in your project planning team it's very difficult to fit a 1D platform on a large yacht. However the use of articulated platforms is really emphasised in the new large yacht text. It has been used in the past, I'm aware of several projects that are using the technology at the moment and we really want to try and get people to try and use sound engineering practice to try and develop an articulating folding platform. However the point at the bottom there is very important—there is a possibility for a reduction from 1D—I'm sure you'll be pleased to hear that after all the doom and gloom of 1D. ICAO is meeting in December this year and the proposal is to allow for a .83 D width of platform with a 1D length of platform. The idea of the 1D

length is to make sure that the tail rotor of the helicopter is on board the vessel. It's important to note this because it's very important to check the tail rotor as part of the daily checking procedures of the helicopter. That comes with caveats in that they will only be allowed if the helicopter operations are done in what us mariners term favourable weather and conditions. Also it will only be allowed for helicopter landing along the centre line of the vessel or the centre line of the landing area. So no side landing will be allowed. There's also a possibility that a .83D circle will be allowed for the smallest of platforms which I'm sure is good news to you all, because that's the sort of platform we're talking about. At the moment the smallest is referred to as less than 16metresD. We're waiting to see what ICAO do on that; we're keeping a very good watch on what's happening there. Moving on to landing area strength—we looked at the possibility of incorporating a reduced strength wings concept to allow for the required engineering to provide an articulated platform. We spoke with class and we spoke with industry and you all said no. You didn't feel there was a need for a reduction in strength because you didn't see that there was an issue with being able to produce an articulated platform which I thought was quite interesting. Instead we are referring to the existing class requirements. It's simple, they're already out there. The common question that I get asked is what if my chosen class for my vessel has no heli landing requirements? Well in that circumstance our answer is really if your chosen classification society doesn't have heli requirements you need to go and look for an alternative class rule for the platform or landing area itself. We covered ourselves as well by specifying a minimum load bearing capacity of the platform. 2.5 times the maximum take off mass is something that's common through the UK CAA, ICAO which is International Civil Aviation Organisation and also some of the classification societies as well, so it's nothing that's new.

Moving on to training. The opening statement there is pretty obvious. But you'd be surprised how often that's missed. We also recognise that the OPITO (Off Shore Petroleum Industry Training Organisation)—are not always appropriate to large yachts. So what have we done about that. Well we're saying that all crew on board vessels with a helicopter landing area should have familiarisation training. How they do that we're leaving up to the helicopter pilot and the master. We're also saying that your heliops team should be trained either to OPITO or an equivalent approved course. Now equivalency there would be deemed by the administrations own departments that are responsible for that. Turbulence criteria—it's recognised that historically the turbulence criteria has been very difficult to comply with. In fact my understanding is that not one large yacht has been able to comply with it, which I found very interesting. So what we've done is, through talking with computational fluid dynamics experts and also we're using CAA research, we were able to refer to a different criteria now, which we believe all those yachts should be able to meet. Now I want to give you a bit of break from me talking here; there's some examples of why we have an environmental criteria there—here the coloured scale is velocity magnitude and you can see some interesting things going on behind the superstructure there. Here the scale is temperature; here we've got an exhaust plume—obviously there's some issues there if you're coming in to land on that top upper deck. Again, velocity magnitude here with airflow over the craft. OK, marking lighting. I keep asking the industry what is your problem with marking and lighting on a heli deck. The same old answer gets shouted back at me—that's not for large yachts. We do recognise that large yachts are designed to be attractive and we want to help you in achieving that. So what is the solution. Well, our proposed solution is to move away from the offshore marking criteria that were previously recommended in CAP437, the ICS document and ICAOs annex 14. we've reduced the width requirements because to me they're ridiculous for some large yachts. Also of course we'd like to emphasise the use of modern lighting systems— there's a story here, because I was very excited when one September afternoon I was told I'd be flown

out to a big offshore platform where they're using a modern LED system. I was slightly disappointed to find it was a shed in Poole Harbour, but nonetheless I'm sure you will agree this picture is quite fascinating. It's actually LEDs laminated in the two epoxy panels. They can be moulded into the deck itself or they can be laid on top, there's all sorts of possibilities with this. I hope you'll agree it's a fantastic idea and if anyone wants more details of this system please come and see me afterwards.

Now as I mentioned earlier the applicability became an issue as the study group work developed. It became an issue because we started looking at all sorts of helicopter operation issues. Should we allow twin or single Squirrel or should we not, and we really didn't feel that LY2 was the sort of document to have that in. The MCA is not an aviation competent body; we're a maritime competent body. So we decided to go to TFT Legal Maritime & Aviation division to see what they thought. And this little text here is what we came back with, which basically says that we're not concerned with the operation of the helicopter—that means basically whether you're a public transport or private helicopter operation, you've still got to comply with our heli text, provided you are a commercial large yacht. What that meant was basically all the flight operations side of things that were in previous texts have been taken out. Which has reduced the size of the document pretty well.

Hanger and refuelling. I don't want to talk too much on this. Really the requirements are outlined in SOLAS II-2.18. However if you've ever read II-2.18 there's very little in there. So what we wanted to do was further clarify what we wanted out of SOLAS II-2.18. Thankfully Lloyds Register and HeliRiviera provided some great text—it was tweaked a little and we consulted with the rest of the study group and came to some agreement on that. It's all very much commonsense stuff and I hope you'll agree with me when you have a look at it. So here we have our main requirements, a 1D landing area with a possibility, I must stress, of going down to .83D. As we say, we'll keep you informed of what happens with that and we've agreed with the UK CAA and the main class societies that if ICAO move to a .83D then all of us would move at the same time. We aim for that to happen some time next year. Again, I must point out that that is only in favourable conditions.

Structure built to class. Nothing unusual there. Min load bearing capacity 2.5 MCOM—be careful with that because it may not be that that's quoted by the helicopter manufacturer. You must make sure that it's not what we mariners would call the light ship condition of the helicopter, and it must include of course all the other fixtures and fittings that are included in the helicopter. Compliance with II-2.18 in SOLAS; compliance with our new LY2 annex 6. and of course the training I've mentioned for the heliops team. And of course crew familiarisation for all crew on board. So, Survey and Approval. Who's going to look at these things? Well, no surprises in this—class and administration do their usual stuff there. But here I must introduce the Helideck Certification Agency—we have Alan Veale here with us today. Their background is mainly in North Sea Oil Platforms but it's spread worldwide and looking at vessels as well. They're audited by the CUK CAA which gives us some comfort. The HCA will be looking at these points here that are on the bottom part of that slide, so they'll be coming out and checking out your heli decks and issuing certification.

So once we'd developed this draft text we then put it to the large yacht working group. The taskforce had done their job, we'd produced a draft text and we wanted to put it out to a wide audience. The two important people on there are the remaining class societies and of course the Red Ensign Group.

Public Consultation. This is where you guys come in. All of the text is available on the MCA website by following these bullet points here. I'll leave this slide up for a second so you can write that down. As mentioned here the initial deadline for comments is 15 December. Now after 15 December I'm going to be amending the document according to the comments. But obviously I can still take in comments after that deadline but nothing substantial because by that point I'd already be amending the document. Any comments, please email *codes* at the address . How do we intend to publish it? Well, it's going to be an amendment, amendment 1 to the MSM that the code is released as. The four bullet points here are the four texts that are available for consultation. That's aviation terms, a few editions there to definition section of LY2, new section training 4.2, that's ship to shore carriage of personnel, we've got an addition to the national annex and we've got of course our new annex, annex 6. As it says here we hope to publish this in early 2007. Now obviously that's dependent on what ICAO says with .83D. There is another point here which I must bring in. It's been brought to my attention within the past few weeks that large yachts have a difficulty in meeting the 5:1 fall off gradient of platforms or landing areas on large yachts. There is current research which suggests that 5:1 gradient could be reduced to 3:1. I believe that would help a lot of large yachts in complying with our text. And if that happens at ICAO you can be sure that you'll see it in our proposed text.

So on that note I'd like to thank you for your attention—there's my email address. If anybody has any direct questions that they don't get to ask me today please by all means email or phone me. But if you have any comments on the consultation please send them to *codes* at MCGA. Thank you very much.

Martin

Ian thank you. We follow that with a presentation from Nigel Watson now. For those of you who have laptops with you at the moment the annex 6 is actually downloadable on Synfo as well, if you need to look at it now on screen. That's a very blatant plug.

Nigel Watson HeliRiviera

Martin, Tork, Gentlemen, Ladies. Thank you very much for the opportunity to stand up here and talk to you today, even though I'm talking into the black. Hopefully you can see me and the slides up here.

Brief introduction of myself for those of you who don't know me and as I come to these meetings I seem to be getting older as my friend Peter Jago was just saying, and there are many new faces here that I don't know. My background is principally maritime, Royal Navy, Sultan of Oman's Navy, and then 11 years in yachting. I was fortunate enough during those years to command a ship, Golden Shadow, which had got an embarked sea plane I'm asked to say by Peter, but during that time I was able to actually acquire a certain amount of aviation management experience on board large superyachts. Marriage, children and things like that meant that 7 years ago I came ashore and started HeliRiviera and the idea was to try and provide a consulting company which would be able to assist the yachting industry in integrating assets, both seaplanes and helicopters. Over those 6—7 years we've evolved into a reasonably successful organisation which currently now helps around 40 boats worldwide, either in a very direct management way or in a simple way with regard to operational support. What this has meant is that we've grown to a stage now where we've evolved and created a new company, LuvAir, which is going to be new to everyone here, I think, and this is principally a VIP helicopter operator, and we currently operate 2 helicopters to the decks of large motor yachts and 1 helicopter in

central London so I speak from a consultant's point of view but also from a an operator's point of view, admittedly with a fairly large team of people around me in the LuvAir organisation. So the aim of the presentation—to provide a helicopter operator's view of successfully integrating with a large yacht or potentially as well to reaffirm our combined aim to ensure that embarked passenger air transport is conducted in a safe, transparent and accountable manner. Over the years when I've sat on the other side of these forums I've often been trying to ask my little question about what about helicopters and where are we going with it. Hopefully now we're going in the right direction.

I'll try and explain the principal factors which affect the use of helicopters with large yachts and also hopefully that will give you a better understanding of the capabilities and the limitations of the helicopter assets that are available to you. So you can maximise their use on the owner's behalf. I'm going to run through a series of discussion topics, we'll have a brief look at helicopters for those of you who are not too familiar with them, we'll talk briefly again about aviation law and its similarity to maritime law, global yacht operations again briefly, training—which has always been something very close to my heart, I think it's always been the missing link in what we've been doing and also quality control and audits, which is an area which I think is going to be undoubtedly the future; it's something we're exposed to all the time in aviation and equally so in the maritime world. So looking briefly at capabilities. Obviously the primary capability of the aircraft is to move the principal, his family and guests around. As you've heard me talk about before, logistic support is very important to these boats—if the owner doesn't have the right provisions, the right people, the right materials, engineering spare parts etc in place then the success of the cruise is going to be diminished. Use the helicopter as much as you can. It really helps with regard to motivation for the air crew as well. In most cases, in most organisations I'm involved with the air crew would like to fly more. This gives you an opportunity. Utilisation. Cruising area reconnaissance—this is something which we've done many times now, using the aircraft as an asset ahead of the boat, get it ahead of the boat, decide which side of the island would be preferential, which is more sheltered, which has got less people on the beach. Finding that perfect beach was always the task that we were trying to do. The air asset can do that. Casualty evacuation and contingency planning. It says in my notes here that the primary thing here is the word *planning*. You have to think about it beforehand. It's all very well having a broken leg or a cardiac arrest and then asking the poor old helicopter pilot to fly to the nearest hospital—that requires some research, and that's where the operational support side, looking ahead, looking at cruising areas, trying to find out how to use that aircraft, comes in. Knowing where those hospitals might be. You have to think about it before you go. Quickly through helicopters—these are sort of primarily on the basis that there are piston engine helicopters, turbine engines, and single, twins and triples. Traditionally the majority of aircraft that we're involved with and our industry is involved with is single engine twin turbine helicopters. The next three aircraft are all from Eurocopter, because those are the ones that we actually fly but equally products from Bell Grumman or Sikorski would be equally appropriate. We talked briefly about singles against twins, it's an argument that goes on a great deal, of course; the aircraft when it's flying over water doesn't know whether it's over water or over land. The engine will still keep running. The fact of the matter is that when you fly out over water with only one engine if it does stop then you know where you're going, and it's only into the water. So looking briefly at the planning points there, the key things to bring out is the aircraft needs to be appropriately equipped for over water operations. Normally single pilot operated, as well. And one of the interesting things with this particular aircraft is that it tends to move in towards the owner/operator area which opens up a whole new Pandora's box with regard to people flying into the backs of these decks. We have a few clients that are

owner/operators flying their own machines and current, sea, and the ability to land in confined areas becomes paramount. Also at the bottom here you will see this is a medium sized helicopter but with a D value of 12.64 so that point .83 would really help us there. A couple of twin engine machines here, the EC135 and 45 both from Eurocopter, 3 and 4 ton aircraft—the difference is here they may be operated both as single and two pilot machines, again the second pilot, the second set of eyes, the second set of ears—the other person to look out and act as the safety member on board. We fly all of the 3 aircraft that we operate with two aircrew. D values in this case—they're starting to rise up above 13metres again. And the EC155. Described as a medium heavy helicopter—for our industry it's certainly large. We are starting to see these aircraft being proposed for large yachts; in the 155s case because of the fenestron tail arrangement, you've got not too bad a D value of 14.3 there. An equivalent aircraft on the market, the Sikorski S76 would have a D value of over 16metres, which means it's driving into those larger deck areas. Again, very much a case of two crew operation, all weather capability of these machines. Very capable machines but require very capable people to fly them who are current and flying regularly in those conditions. Then we look briefly at helicopter performance; it's not about O—60 or what's the maximum speed of this thing; it's determining really how many passengers and how much cargo and fuel we can carry safely and that's what we want to do on and off the back of your yacht. We're also interested in these figures with one engine failing during each stage of flight. Obviously engine performance is a vital aspect when we're trying to decide what would happen if we lift into the hover with the principal and family and that amount of fuel on, and we lose an engine. Where are we going? Can we fly away or are we going straight back down on the deck. We look at some of the fixed data associated with performance; engine power, main rotor gear box, rotor efficiency, and then some of the variables that come in there; the helicopter weight, obviously the heavier it gets the less performance we have. Air speed we like, we don't want calm hot days, we want some air to be actually flowing over the boat so operating under way, making way, passing through the water, is not a negative thing for us. Equally we want clean air as well, understanding red 30, where does that wind come from, giving us clean air into the rotor system—an important factor. Temperature and pressure, they both hit us hard—hot and high is what we don't like. Of course high is rare at sea level but hot is something that we get a lot of, so that will affect our performance as well. Looking at some of the physical environment issues here, the weather conditions deteriorating, we'll look in a moment at what happens with low level flying as well, and deteriorating weather. But as weather deteriorates that's going to make operating to the yacht more difficult. Topography en route to and from a location, where we're physically taking off from, is there enough space to take off, is there enough space to land. How is that affected by the movement of the deck or airflow over the deck, temperature etc. Do we have enough power to hover. Obstructions affecting the flight path—I think that within the amendments to the code we've got some good clear ideas on the clear obstacle sector and the limited obstacle sector and in most cases I don't really have major issues with obstructions. Hopefully we're starting to see the relevance towards yachts. So in a perfect world we would always operate the helicopter in such a way that if one of the engines failed we could continue to fly or land without damage. It would mean huge engines, a lot of fuel, a lot of weight, uneconomic, it doesn't happen. But that would be class 1 performance. In the real world we have to concede that when an engine fails at a critical point it will lead to a forced landing during which time the aircraft may sustain some damage. However we must be satisfied that the occupants will not seriously suffer injury. This is thankfully a police helicopter, nothing to do with a yachting situation, it's an EC135—it had 3 people on board, it's designed to offer very good protection during an accident, as long as the occupants are wearing their seatbelts correctly. This is a soapbox for me, wearing seat belts correctly inside helicopters. It's a difficult issue, always. That's the aircraft 4

days later—it fell out of the sky, very high rate descent, serious crash. All the onboard personnel were actually wearing their seatbelts correctly, 2 of them cuts and bruises, walked away into hospital, released that night, able to work a few days afterwards. The third one broken leg but again after a short period of hospitalisation the injury wasn't life threatening. It's supposed to reassure you to a point—the aircraft collapses around you, absorbs all the energy, and you actually get out of it. But you have to be sitting in the right place to do that. We'll look briefly at aviation law; similar to the structure of maritime law. Strict commercial regulations, less strict private regulations apply to operators, aircrew and passengers. It's to protect the aircrew, the passengers and members of the public. Differs according to the National Aviation Authority in which the helicopter is registered and the airspace in which it is flying. It should be noted that international waters are not always underneath international airspace. Here we see that aviation law dictates the minimum acceptable weather conditions for determining visual flight rules flying and instrument flight rules flying. We're obliged by law to actually fly to these standards, we have no choice. The commander of the aircraft must be satisfied that the helicopter is able to operate to the required performance standard, again, it's a legal requirement. If it's not then the pilot is in trouble. Here's some aviation low flying things; an aircraft may not fly closer than 500ft to any person, vessel, vehicle or structure unless it is for the purpose of taking off or landing. No aircraft shall overfly a congested area at lower than 1,000ft. Permission from the aviation authority is required to land in a congested area. Congested areas for us, in our business, can be the owners' house, a shipyard, they can be a port—lots of places where permits are required, permission to land, the flexibility of the aircraft is made a little harder because of the need to go through the processes. Aviation law and passengers—the duty of care and best practice. What our duty of care is to you the passenger and your duty of care to us as the operator. Appropriate allocation and occupation of seats; we'll tell you where to sit and hopefully get you to put your belt on properly. Appropriate safety briefing. This is another difficult area—you will see here one of the pictures shows Sam in fact briefing one of the guys on the 145; this is something that we try and get across all the time to owners, families, etc. If you fly to the North Sea, every time you fly on the helicopter you have to go through the same safety briefing. It may seem tedious but that's what the law says. When we're flying VIPs or anybody we have to give them some form of safety briefing. Working out how you achieve that with an owner and his family is one of the challenges that we all have. Get the owner on your side, make him realise the relevance of it and it makes life a lot easier. Appropriate supervision when entering and leaving the helicopter—this is about helideck management —massively different standards out there in terms of how well decks are managed; some extremely well, some it's really not good at all. And I think it's one of the areas where training really needs to focus on and we need to try and improve that and get it to a reasonable quality standard. Airport security—please remember that all our VIPs and all of us are bound by the same sort of security procedures. Therefore as part of the law we have to run through those when we arrive connecting with a jet at an airport prior to going en route to the yacht with the helicopter. Global yacht operations; this is a hostile environment, unlike the picture which doesn't look too hostile. It's there, sand, sea, salt, changeable weather, wind conditions etc. It all makes it very difficult to look after the aircraft and be sure that you can operate it safely. Maintenance support becomes absolutely vital and care of the helicopter in hostile conditions is vital. Whether you go down the hanger route or whether you go through the upper deck storage route, whether you cover it, whether you don't cover it, whether you have an embark technician who's looking at the machine every single day, spraying it with water, going around with his little can of WD40. We have to micro engineer or look after the aircraft husbandry of these machines in a finite way every day. Remote support of the helicopter and the crew; we're going to fly in Thailand, we're going to fly in South America, we're going to fly wherever. All of these places

have got their own little nuances and rules. You need to be able to follow those rules, to have an idea of how you'll be able to operate safely. And to be honest it's getting harder. As we look more closely around the world the security issues that we're currently living with, permits to fly these things easily in different parts of the world are not as easy to come by as they used to be. Those of you who have gone through the French system with me year in year out for the last few years—it's one of the few places in the world that have actually got a structured system that once you've got the permit which is a bit of a pain to get in the first place you can actually fly well and easily. If you ask me to do it for you in Thailand or ask me to do it for you in Brazil—actually Brazil is a good one, that would be alright—but in other countries that are a little harder then it's very challenging and it's something that you need to think a long way ahead about if you're planning the programmes of these boats. Weather and size of deck in relation to helicopter performance; I think basically Ian has covered these points well and we'll be running through a few more of them here, but we would like larger decks to fly to. I know we can land on smaller decks but that's not the direction we should be going. We want to land on larger areas. So size and strength of the landing area—I think Ian's dealt with as well; obstacles as I said I don't really have a major issue with them. Interestingly flying into the back of LGB here on the 145 you'll see the mast of the sailboat sitting up there on the left hand side. It's not an obstacle for the aft pad but very much an obstacle for that forward pad, if we're trying to put the helicopter into a secure position there. Wind conditions; again I think well addressed by Ian. Disturbed airflow was also well addressed by Ian. Visual cueing signals—we talked about lighting, deck materials, the ability to be able to know where you are on the deck—I'm not really worried too much about going away from specific helideck markings; we tend to fly on and off these boats to where the end of your deck shoe coincides with the bottom of a particular stanchion, as you're looking down through the bubble of the pedals! So from that point of view I think that for embarked aircraft it's not a major issue. I think for charter machines where people are coming for the first time it requires a different view and perhaps a very clear idea from the vessel to the charter company briefing them as to their aircraft's capabilities and helideck capabilities. Helideck outfitting, including fire fighting—be properly prepared; we're just about to run into the be prepared bit. And we'll talk about established procedures in a second as well. Be prepared. Here we see a captain of the aircraft talking to the captain of the vessel with the helicopter landing officer. It's a proper pre flight briefing, it's going to flying stations. OK so we come from a military background and most of the guys that fly for me are from a military background. But there's a good reason as well, the training's great and they're safe. And they go through these type of procedures every time. It's your bread and butter, how you fly. The helideck and crew should always already be well equipped. This is pre delivery stage. Getting the right equipment on board, helideck crash rescue kits, all of the other associated things. Personal protective clothing for the people, portable extinguishers, all well documented, not difficult to find. Establish practice and follow standard operating procedures. It has to be the same thing every time, not we fly one way when the boss is here and a different way when he's not here. We have to standardise the way that we fly. Emergencies—they will happen. Thankfully very rarely and we want to keep it that way and have a trend in terms of developing the code such that we don't get into these situations. But the emergency can have nothing to do with the vessel; on occasions it can be the aircraft. So we will try and fly the helicopter safely. We will fly the helicopter safely but then somebody said well, you're going to try your best but sometimes you've got no choice. Deal with the emergency and hopefully not present the yacht with an even worse situation. But what that means is that when I come in and I can't fly back to my alternate, then where I'm going I may not give you the problem on deck but I'm going to give it to you about 25metres off the starboard quarter or something. So hopefully you're ready for me and when I ditch you can come to my assistance. That's where this preparation

bit comes in. The yacht must be prepared; establish practice and follow the emergency procedures. Training—helideck training should be mandatory. I've sat on the other side there and said that for 5 or 6 years. Hopefully we're getting close to that point. If it wasn't for the generosity of my primary clients I wouldn't have a training programme and a lot of the pictures you see here are there purely because of the generosity of those people. It's something that's been a hard sell, commercially to this industry. I don't think it should be. Most people I talk to say it should be, it's a no brainer. No, it doesn't seem to be a no brainer because it costs money. Give clear understanding of normal and emergency procedures. This training can be conducted ashore or it can be conducted on board the boats. There's an opportunity to do both. Personnel should remain qualified and current. That's the other area which I think is an important thing to try and focus on. You get the qualification, and then you must maintain the qualification, in the same way that a pilot gets the qualification we have to maintain it. The helicopter underwater escape training—HUET—any passengers should be encouraged. A brief story on this—I developed this course basically having flown as the co pilot on the 135 in between St Tropez and Nice one day and we did a rotors running turn around with the family, myself and the captain in the front of the machine and we had in the back three children and two adults, both ladies. As I closed the door and I looked into the back of the aircraft I thought if we ditch between here and Nice none of these people are going to get out of here. It's just very difficult for aircrew to get back and save people. When you ditch in water hopefully the floats will go off; even if they do go off, where's all the weight? Above your head. What happens? it floats beautifully—upside down. You have to be able to get out of this machine. You do the HUET course, half a day, it's a great investment in time. It could save your life. Auditing and certification—this is where we're seeking to find our partner. One of the things which is a problem for me as a consultant in the industry is trying to be able to assure the industry itself that what we're proposing in terms of the basics of CAP437 are things that should be adopted; there may be areas of non compliance but there are ways of getting round those areas of non compliance. What we needed was a partner, which is an independent partner, to be able to help us through that. This is where we felt the Helideck Certification Agency has got a role to play. The HCA is today represented by its general manager, Mr Alan Veale, who I'm sure will be happy to answer some of your questions after this presentation. The HCA is the world's leading independent authority on all matters relating to the operation of helicopter landing sites, both onshore and offshore. I think we're very much focussed on the UK role they play but you only have to talk to Alan for a few moments to realise the international role that they're taking on now, and the international demand that's coming from all over the world for their services and their Certificate. So in conclusion here I think what we've seen is that in order to try and help the flag states I believe that it's necessary to try and put together a team that will actually be able to assure them that these commercial helidecks are going to be appropriate and we've discussed that recently and felt that the basis of the team should be the class, it's very much involved with regard to its normal responsibilities, the Helideck Certification Agency will probably be another partner to that team. In addition there appears to be the need—and I can sympathise with this—for a fuel representative to deal with the anomalies with Jet A1 fuel and its quality control and also there may be the aircraft operator, although the aircraft operator is likely to be covered within its operations manual and the aircraft registration authority is likely to be not too interested in the specifics of landing on the back of the boat. As far as auditing of the operators is concerned I think this is another area which we need to talk about; a commercial operator will be governed by their air operating certificate or equivalent and the associated legislation and inspections that form a part of its being awarded. However, private structures are not governed by the same quality control standards and legislation so it is incumbent upon the flight department to put in place the appropriate operating procedures and open them to external audit. This is a

requirement for us now under the banner of LuvAir —we're a private helicopter operator, we're not operating to GYROPS 3 but we're operating as close to GYROPS 3 as we can. And in doing that we have been asked by our clients to be open to audit. As a private operator that means trying to create a system for someone to come and look at you. Because it doesn't actually exist, and there isn't a requirement. But it seems very clear that in the same way that you are audited, we should be audited as well if we're trying to achieve that quality standard. I'll explain what that picture is in a minute. Next steps. We want to improve dialogue with industry and owners, we want to implement the proposed amendment to the code and continue to offer the safest and most effective service possible, with these incredible assets. And the picture was about something called the Bell 609 tilt rotor—the tilt rotor has got rotor blades on the ends of its wings; it's a fixed wing machine from that point of view and the blades literally rotate like that. Meaning that it actually has a D value of 18.3metres wide and 13.3metres long. I know of at least 2 projects which have currently ordered the tilt rotor, which won't be available until about 2011. But it's coming, and we need to be ready for it.

Thank you very much. This is our unwanted guest but I think it's something that we find quite amusing. Thank you very much indeed.

Martin

Nigel thank you very much. Essentially now Alan and Nick are on the panel to answer questions on the various issues or to stimulate some debate —and I think Nick has a few things to say as well, from the flagging issues. Can I have some light up please. Any hands that need to throw things at Alan about the HCA issues or Ian Lardner about the new annex? Mike Sanderson thank you.

Mike Sanderson MCA

I welcome this additional annex 6 to the LY2 code. From my point of view the only problems I can see is the matter of crew training. Already at this forum we've talked about problems with crew training, and getting sufficient people, and I'd like to ask Ian if he could just expand a little bit upon it. First of all, the heliops crew, how many people are involved in this and what training will they require? And secondly you said crew familiarisation for the rest of the crew. What familiarisation? I mean apart from an exploding boat and getting off it, what have they got to do with it? And bearing in mind that if the principal and his family don't have to necessarily do helicopter training why do the rest of the crew have to be involved in this? And lastly, could you tell me is the pilot considered part of the yacht crew or he is a supernumary?

Martin

It's got to be a first, the MCA grilling the MCA. Ian please.

Ian

Thanks Martin, thanks Mike! The training—the intention really is to follow the OPITO line of things, so basically we're looking for an order of events where you have an HLO (helicopter Landing Officer) with an HLO OPITO certificate or an equivalent approved certificate, that's approved by the administration. We're also looking for HLAs, with an HLA certificate or an equivalent approved certificate. Now the number of those you have is dependent on the type of helicopter operations you have, the number of landing areas you have; it's not something that I wanted to put in there because I think it's up to the master of the vessel, the owner of the vessel, and the

pilot and the helicopter operator. I think it's very important that the pilot and helicopter operator get involved in that. And get involved in the decisions of who operates the helicopter on the yacht. I anticipate that the numbers of people involved in the heliops team would be apparent at the point when they go to their training and OPITO talk about the numbers that are required and it's part of the syllabus of the OPITO training so that's where we hope that'll come in. How we deal with that with equivalent courses—well we'll have to look at that and I think discussions with OPITO are ongoing. We're seeking more guidance from them on what we should expect, and look for. In terms of familiarisation, that was something that the industry wanted, they felt there was a big lack of knowledge of the dangers involved in using a helicopter on board. Things like leaving towels and deckchairs out on other decks where they're liable to be blown up into rotor blades or into the turbine airfeeds. Really simple points you would think, but points that need to be got across to the rest of the crew. Who does that? Now we've left that up to again the pilots, the helicopter operator, the HCA as part of their certification process—we'll be looking at those sorts of things as well. We didn't want to specify them, basically is the simple answer Mike to your question. We didn't feel we had the competency to do so; we wanted to leave it up to the HCA and the helicopter operator. I hope that answers your question.

Mike

Well, sort of. I'm going to need it a bit more clear than that because I can well see that apart from Ensign having to enforce this training possibly next year I'll be sat there and people asking me about it, so I need to be clear on numbers and proof of training.

Martin

Alan, do you want to come in?

Alan Veale Helideck Certification Agency

Perhaps I can just come in here from the HCAs point of view. Obviously our experience is in the offshore industry but to give you maybe some idea of the sort of things you need to be thinking about, HLO is there to control the deck. On the offshore installations in the North Sea we would require a minimum of an HLO plus 3, and that's made up of the HLO who will control things, you'll have at least one guy on the phone monitors and 2 people to go and effect a rescue. So on a smaller vessel you should maybe be looking towards an HLO plus 2 —i.e. one guy to control the incident and one guy to effect the rescue and one guy controlling the phone monitors. So that would be worth thinking about. And the other point about why should the rest of the crew be given familiarisation training—I think it's imperative that everybody who's on a vessel that's operating a helicopter be given some training on what to expect during helicopter operations, even if it's down to the point of maybe, I don't know, a lot of these vessels have the chef ditching gash over the side, attracting seagulls, for example, just as you're trying to land, or throwing plastic bags. I can cite an example of a very large helicopter landing on the back of a survey vessel in the North Sea—just prior to landing—they ditched gash, plastic bag straight into the intake of an engine and the aircraft crashed on the deck. That's why everybody needs to be familiar with the sort of things that can go wrong when you're operating helicopters to decks.

Mike

So does this mean that they'll have like a one day training course certificate, like a sea survival or first aid?

Tork

Actually if I can interject, I was on the same committee for PYA and we were one of the people who pushed very hard for familiarisation to be mandatory. Certainly I can't say it would something along the sides of the basic familiarisation that you're required to do under ISM when you board a vessel. It wasn't intended to be a course, it was meant to be an enshrined need to just say well, keep your head down when you're walking under the rotor blades, very basic stuff for the crew who are on board who are not actually associated with the helicopter operations at all.

Mike

And just the final question you didn't answer was is the pilot considered part of the yacht crew or is he a supernumary?

Ian

OK to answer that Mike, it depends on what type of contract he has with the vessel, I would have thought. Are we talking in terms of familiarisation training?

Mike

No. I'm talking about—I mean the safe manning document—and then the crew accommodation requirements, so that we've got to make space for him or whether he's not part of the crew.

Ian

Well that depends on the arrangements they have. Some helicopters operate just touch and go, some operate where the helicopter is based permanently on board. So I think there's no simple answer to that, Mike. It depends on the contractual agreement between the pilot and the vessel. I think you have to treat each individual case as such. I just wanted to point out that familiarisation training, maybe familiarisation was the wrong word, it's more awareness training, awareness of the dangers involved. We haven't specified exactly what's involved in that because it's unique to each vessel. Really it's up to the pilot, the helicopter operator and the HCA to see that that's carried out. And I don't envisage Ensign being heavily involved in that side of things because it is looking at more of the helicopter ops. If you think it's an issue, Mike, it's something we can take an action to look at further, but I think really it's something that HCA and the operators should be concerned with.

Mike

Thank you.

Nigel

If I can just add a few practical things from an operator's point of view, running through the questions. The contractual position with regard to the aircrew—I completely agree with Ian, of the many boats that we deal with, some aircrew are employed directly by the yachts, others are employed completely independently by a separate company, as in the case of LuvAir, it's entirely separate; we're the

employer there. With regard to training—again, what we've been doing in terms of numbers, we look exactly as Alan says, at an HLO plus 2, but we're looking for two teams on board, so essentially we're looking for 6 people to be trained and for that training to be maintained. What we recommend to the client is that they should do a course away from the boat, a formal course at a professional aviation fire training school, and we think that a reasonable period of rotation for that, or frequency for that periodicity, would be 2 years. What we'd like to see is that every other year some form of formal training takes place on board the boat itself, again specifically with regard to those deck crew and in addition what we do as operators, every time we land on any boat, helicopter pilots love to talk about their machines. It's the best thing in the world for them. So we try and encourage all the yacht crew to take an interest in the machine, we try and look for the flexibility to be able to fly the machine for shall we say jolly type flights, where people can have a ride in it and understand what it's all about, and in that we can build in that basic familiarisation training, so I don't think it needs to be onerous, just something that industry takes on board and then follows.

Martin

Does that cover you, Mike?

Tork

Actually there's somewhat of a following question to that which came in by text. They asked why should we shy away from the IPITO training when it's the offshore industry standard.

Nigel

IPITO—well one of the difficulties we have with regard to the HLO training, which is something that people definitely want, is that you need to do a certain amount of industry time beforehand in order to be able to take the course. We have no objection to doing IPITO courses; they are of course not specifically oriented around our industry and you will get very much a view of the offshore industry, but we've no objections to it, but equally if there are other training providers that are providing a course of a quality that is appropriate then we feel they ought to be given the chance to offer that course.

Ian

Just quickly—we're certainly not shying away from OPITO. As you say it's the industry standard but it is very much offshore. We wanted to help you out really, and we recognised that there are other courses specific to large yachts that may take the same sort of approach and the same sort of syllabus as OPITO. When it comes to approving the courses as an equivalent to OPITO certainly the MCA will be looking to OPITO for advice on that and taking guidance on what should be the syllabus of an equivalent course. So by no means are we shying away from OPITO.

Mark Robson AquaStar Aviation Consulting

Following on from that previous comment, if we are going to state as we do that the proposed text applies to all helicopter landing areas on commercially operated large yachts certificate to LY2, should we not then require the heliops team on those yachts to be trained to a certain standard and put that in, because that is one thing that we are effectively going to regulate on a commercial basis, it's not a private boat,

it is now a commercial boat and the STCW requirements, because it's a commercial boat, are clearly laid down. So should we not therefore also clearly lay down the helicopter landing team requirements?

Ian

Do you mean in terms of formal training?

Mark

Yes, in terms of formal training and numbers, as Alan said, the HLO plus 2, and as you continue into that, given that we are now starting the OPITO training can we accept that for the first year it may be a team of 3 HLAs but once they then have experience, with the industry and with the helicopter one of them can then go on with the required experience to become an HLO, so we have a sort of period of acceptance, for want of a better word.

Ian

I see where you're coming from, Mark. I really don't think that we should be specifying the numbers, purely because we don't know how many it should be. OPITO does train people up as to how many they should have on board; I know Alan's made the point it's an HLO then 3 assistants, but there are also other staff and officers that can get involved and there's other OPITO courses at levels below HLA so we'd be looking for the full range of people on board. I'm not really sure that we should be getting into the issue of numbers, but in terms of approval of courses, we'd be looking to OPITO not for approval, but assistance, when it comes to approval of the equivalent courses, so we hope that will make sure that we will have a good standard of training available.

Martin

Nick, please. Fire away.

Nick Gladwell regs4yachts

Well, ignoring the fact about the plastics going over the side earlier, we'll just go over that one! My sort of questions to the panel, and I'm here as a sort of stir it up man—there are a wide range of flags including the Marshall Islands which have helicopter decks, and helicopters on them. Most have been using LY1 or LY2 as a guideline and as we know there's very little in there, and what is in there is a little bit confusing, so we have all skated over it and this annex 6 is a welcome addition. More information and easily laid out, easily understood. My question is, what sort of time frame are we looking at for bringing this in? Because obviously there are a lot of helidecks out there which don't comply; there is a wide range of private yachts, private/commercial and then full commercial yachts and it's going to take a little while to get used to this and edge towards the ideal situation, which is adopting this annex 6. so what do you see—I think Ian to start with—what is your time plan for bringing this in and when will you start enforcing it?

Ian

The thing is, Nick, I knew you were going to ask that. I think the intention is that it applies as soon as it's published and as soon as it's published as an amendment. As far as we're concerned all new large yachts from that date onwards, commercially

operating, must comply with the new text. As far as existing vessels are concerned, our policy historically has been that if you can't comply with CAP437 or ICAO and X14 or the ICS guide then you can't use your helicopter landing area, if you're operating commercially. And that's still our policy now. So we don't see that it will be so much of an issue although I appreciate that there are some Red Ensign group flags that have taken a slightly different approach and, as you know Nick, that's something we're bringing up at the next Red Ensign group meeting to try and resolve. But from the MCA's point of view we see that there shouldn't be platforms out there that are being used commercially that don't comply with either CAP437 or annex 14 or the ICS document. Now I think what we'll have to do is take a pragmatic approach to this and look at how they have been approved and what standard they have been approved to, and take it on a case by case basis. I don't there's a simple answer to this; we can't immediately say you've now all got to have a helicopter deck that's compliant with the new annex 6. So I think really the answer to your question is, that if a deck has already been approved for commercial use by another Red Ensign flag state we'd have to look at what it has been approved to and whether we'd accept it upon publication of the new annex 6.

Martin

Does that cover you Nick?

Nick

I think obviously that's welcome, a pragmatic approach. I think that's what everyone's after. People will be able to comply with parts of it fairly easily and hopefully major parts of it already. But obviously depending on the result of your meetings later on and is it going to be one deal, 0.83D—you know you can't instantly expect vessels to be building great chunks of deck onto their helidecks—that takes planning, it takes quotes, and it'll alter all sorts of information and situations aboard the vessel. I know from our talk last night that there is always a difference between Red Ensign flags, the MCA views Red Ensign flags—the UK—as the mother and the other Red Ensigns as the children, whereas the other Red Ensign flags view themselves as independent statutory bodies with their own laws and they will do their own thing, which I know leads to little family squabbles, and best of luck. But my experience as a surveyor is that the answers are always in the wording and even in LY2 which came a little closer to enforcing, it says attention is drawn to—it doesn't say *you will apply the following*, or *you must do*. It just says attention is drawn to. I think everyone uses that as a guideline and everyone applies it as best they can, as practically as they can, and that's the problem we face. The new annex 6 is a welcome move forward to an ideal situation where we all want to be but my own feeling is that if at some stage the MCA turn around and say right, from December 15 2007 or whatever, you all must have this or else you're not flying helicopters I think that would be a big mistake. But I'm interested to see how it goes.

Tork

Ian, can I ask you to touch on something here which is to do with commercial operation. As we know, charter yachts go into and out of commercial and private operation, with the owner on board they're operating privately, with guests on board they're acting as a commercial vessel. Is it still the case, as I assume, that when they have charterers on board the operation is commercial and the heli landing pad must be approved to annex 6 regardless of whether it's being used by an embarked helicopter or one that is bringing guests to the boat that they have separately

contracted themselves. Nothing to do with the vessel. It's my assumption that that is still the case.

Nick

Yes. Indeed that is the case. If your vessel is operating outside the definition of pleasure vessel in the regulations then at the time it is operating as such the landing of the helicopter regardless of the use of the helicopter must be in accordance with annex 6, the new text that we're producing here.

Tork

Yes but that would also—the point I'm labouring, if you like, is that it doesn't just apply to your helicopter or an embarked helicopter but if you're working with Nigel and he brings the guests to the vessel the landing pad must be compliant when it's in charter.

Ian

Indeed, if the vessel is operating commercially, yes. A point to pick up there, Tork, is what about the regulations applicable to the helicopter. Now I mentioned that we've taken out a lot of the helicopter operations text from the proposed document and obviously the applicable regulations for that helicopter are those of the administration with which the helicopter is registered or the air space in which the helicopter is operating. That's something slightly different from what we're doing here, as I mentioned in my presentation. We're really just producing a technical standard for the platform itself to ensure that there's something safe for the helicopter to land on.

Tork

Thanks.

Martin

Alan, is there anything you want to add? Can I ask you, actually, very simply—the HCA approach on this. Who's managing that process; does the client have to come to you directly or is it through MCA? And as a result of that, is there any guideline on what this will cost, to get a certificate and the audit?

Alan

Yes. The quick answer is it's still very much in its infancy. We're still in discussion, a dialogue with the MCA and there's been no formal arrangement. We've been approached relatively recently to lend our expertise and knowledge which is based on CAP437 and at the moment we're getting many enquiries from designers and builders since our existence has been public, in this sort of industry. Obviously we'll be working closely with MCA and eventually hopefully we will get a formal arrangement with them, and class, to formalise exactly what we're going to be doing. Obviously our expertise is on CAP437 and the annex 6 is based on that, but at the end of the day we will audit and inspect to whatever standards are required of us. As regards the certificate, that's quite difficult to know how we will do it. It obviously will have to be totally different from the type of certificate we issue at the moment to the offshore installations and vessels involved in the offshore oil industry but that again is something that we will end up having to discuss with MCA if and when we come to this formal arrangement with them. Does that answer your question?

Martin

Any more hands out there? Yes. Simon Ballard.

Simon Ballard Cameron Richard Smith

Yes, this is an insurance question. We've got a lot of slides here about fire fighting and I thought we also saw a slide regarding refuelling. It might be a silly question but I presume fire fighting with aviation fuel is a totally different ballgame from normal fire fighting. So when the crews do training and mandatory requirements for fire fighting training does that cope with aviation fuel and will it need to cope with aviation fuel in the future?

Ian

Yes the OPITO training deals with fire fighting of aviation fuel and trains people up. We hope that the equivalent courses will as well and obviously we'll have to look at that as part of the syllabus. I think Nigel wants to add something.

Nigel

Not a great deal, from what you were saying. I think there is a significant difference; in the training that we do at one of the UK schools we also do STCW 4 day advance fire fighting there, although it's not something that I sell there, but the helicopter courses that we run there, the syllabuses are significantly different, dealing with JET A1 is significantly different to dealing with other forms of marine fuels. The flash point, as you're all probably aware, is around 38°, the burning temperature in 40secs is up at around 800°, at 600° aluminium melts, you need to react very quickly. That's the point that we're trying to get across with regard to the aviation courses that we do, so I think there is very definitely a need for specific JET A1 fire aviation training.

Simon

So what we're actually saying is we've got crew on board boats with JET fuel that aren't trained to cope with a fire, and there are no specific requirements for them to actually to do so?

Nigel

I think you're right. In fact I'm sure you're right.

Martin

So what's your premium?

Simon

I'm a broker, I don't mind if it goes up, it's fine. But I mean it's a strange situation. We're looking at a very important topic and something that can go seriously wrong, and we had a question earlier about why should a crew be trained which just seemed fairly ludicrous. If we're dealing with operations like this they've got to be trained, and they've got to be trained to fight AVA fuel.

Ian

Can I add a very important point here. It's that we've always, throughout any edition of LY1 or LY2, referred to SOLAS chapter II-2.18. The helicopter refuelling section of SOLAS clearly states that fire fighting training must be provided and kept updated so therefore there is a formal requirement in SOLAS which is referred to in LY1 and 2 for fire fighting training if the vessel is going to be fitted with refuelling facilities.

Martin

Thank you very much. Is that Mark at the back there?

Mark Loring Atlas Marine

We manufacture shore power for yachts as well as the ground power units for helicopters and my question is in regard to the new rules. Do any of them relate to how the ground power unit used to start up the helicopter is tied into the ship's electrical system?

Ian

I was worried I was going to get a question like this. I'm not an electrical expert. The answer is yes, our large yacht unit looked at that section and put in some guidance there. I think it's also based on Lloyds requirements for that. I can't tell you, unfortunately, off the top of my head what the answer to your question is but if you come and see me afterwards I can show you the relevant section in the text. I'm very sorry, but I hope it answers your question.

Nigel

I've a little bit to add to that as well. Of the 40 or so boats that we do something with, obviously we see a lot of red box portable units sitting around providing 28volt DC supplies to start these machines. There are a few vessels, and I can count them on one hand, that have actually gone to the trouble of doing something more sophisticated and actually plumbing in a good 28V supply that can provide both the peak amperages required to start the machine and also, more importantly, the sustained amperages allowing this to run all the onboard avionics and do actual fault finding on avionics etc and so the majority of the industry is going down the sort of 28V red box idea.

Martin

What's your recommendation?

Nigel

Well, in terms of simplicity and cost it's definitely red box portable, 28V. But that's only going to start the machine. If you had an embarked aircraft which I was trying to exist with on the boat for a long period of time then I would encourage at the build specification stage to try and plumb in something which would give us not only the start value but also the sustained amperage to allow us to work on the aircraft afterwards.

Martin

OK Mark. A business opportunity. I can see we have some more questions.

Mark Robson

To continue with that comment about the red box. One of the maintenance requirements of the helicopters especially if they're embarked, is to wash the engines through and to rinse the engines through, and the red box is not capable of providing a sustained amperage equivalent or competent to do that on a routine basis. The question that I was going to ask, mainly was for Ian, which is SOLAS II-2.18 states that for the helicopter deck in fire fighting the scupperage arrangement must send all the fluids overboard, because it's deemed to be an emergency situation, whereas the annex states that we must have a tank that is suitable for taking the contents of the fuel tank plus environment effects. Is there a change in that position or what is the evolution of that?

Ian

It's a common misconception that SOLAS actually says that. If you actually read through SOLAS II-2.18 the requirements for guttering etc to run overboard is not actually in the refuelling side of things, it's a reference to water on deck and a means to reduce build up of water on the heli deck. Therefore the arrangement that we envisage and the arrangement that we advise people to prepare is a system where you are capable of running all deck water etc overboard straightaway but at the same time if, for instance, you had a crash on board with major fuel spillage I'm sure you are aware that safety of life supersedes anything. So at that point you are able to then ditch any fuel or fire fighting media etc straight overboard. I would also advise that it's worthwhile, the reason for annex 6 saying that there has to be pipeage to a safe tank is in case of accidental fuel spillage on the deck, so that you can redirect your water drainage system into a safe storage or holding tank, whereby you can drain any fuel spillage on the deck. I hope that answers your question clearly.

Tork

Can I just ask Ian and Nigel to touch in a little more depth on fuel husbandry and the necessity for understanding it, a degree of training and familiarisation and also for shipyards the necessity to actually consider the way the plumbing is done, so that it can be sampled in the right place and so on.

Ian

The text talks in depth about how to sample—it's mainly sampling at the lowest points of all your pipework at the bottom of your tank and it needs to be done by someone who knows a bit about aviation fuel. I think we recommend that people go and get training from the fuel supplier to learn a bit more about the handling of JET A1. I went and spoke with some very senior fuel handling guys in Exxon Mobil with regard to aviation fuel and they said it's not generally a problem. The processes are relatively simple, it's just a matter of getting some basic training and having some knowledge of the dangers involved to be able to handle the stuff. There was a question about the use of visijars; as I'm sure you're aware we tend to shy away from glass sight jars in engine rooms. Obviously with aviation fuel that's still the case. However there are visijars available which have a closed spring device whereby you drain your fuel into a container, the spring automatically then closes and then you're able to view the fuel. It's very important to have a regular, I think daily, visual check of the quality of your fuel and certainly when you're undertaking fuel movements whether it's taking on board or delivering to the helicopter. It's one of the most

important areas of helicopter operations if you're proposing a hanger and fuel facilities is the quality of your fuel because if you get a fuel issue and the helicopter takes off with dodgy fuel then obviously the engine will suffer some issues and the only place you're going is in the water. It's obviously a very important issue. Nigel you can probably add something to that.

Nigel

It's the big hot potato for me. It's probably the issue that we have had more problems with over the years than anything else. Fortunately the systems are very sophisticated and there's a lot of filtration, there's a lot of ways of stopping contaminated fuel getting to the point where it actually gets into the aircraft but one of the difficulties that we've had is trying to make it very clear where the quality control line stands with JET A1. With me it stands completely with the engineering department on board the vessel. It's their responsibility. It's a fluid—once it gets in the aircraft or just prior to getting in the aircraft then we take a big interest in it but prior to that point it's very much an engineering point. The quality control training—it's there, but I don't think it's that easy, to be honest. As an example, in 6 years of doing what I've been doing I got to the stage where I realised that I just didn't know enough personally about quality control of JET A1. And that is why now I employ someone to actually help me do that. It's a complex subject and when we're writing quality control manuals for JET A1 for boats and we're down to about 20 sheets and the boat's complaining, then David, my partner in this area, says well, if you look at Heathrow or Gatwick it's 500 pages, looking after JET A1. It's an area which the industry needs to improve on, and it is as I think everyone agrees, a very fundamental thing. It will bring the best helicopter in the world down very quickly. So I think within the training aspect of it, quality control of JET A1 is something that's very very important, and I think it's interesting if you look at the certification process, as we were saying before, you have class being very capable to deal with a lot of things—class are also capable to talk about fuel—do they actually want to be the people responsible for the fuel side of a certification process? No. Helideck Certification Agency. Very very competent, experienced group of people. Do they really want to have fuel as their primary responsibility or part of their responsibility? Not directly. They want a specialist on board with them. And that should highlight the importance that fuel is given within the industry. It's a very difficult one and a real hot potato.

Nick

I just wanted to add a bit really. You know, as we obviously are all now beginning to realise, helicopters are very complicated bits of kit and it's not just have a big landing area and stick a helicopter on it. There's a lot of support required. One of the points I wanted to make was JET A1 I believe is basically paraffin, so those of you who have oil fired boilers at home you have a big tank of this stuff in your garden. Plumbers, heating engineers, tend to stick it in their diesel cars and they can run them without paying the tax. But the important thing for me is that on board husbandry for refuelling means samples have to be taken every day because of the danger of water getting in there and samples have to be kept. From the point of view of a yacht, petrol, which you have in some tenders and jetskis is far more dangerous but obviously in a lot less quantities. This stuff is only dangerous in large quantities especially if the helicopter crashes. In small quantities it's not a problem, it's less flammable than petrol. But the important part here is you have to keep samples. And that's where we start getting problems, because you need a proper sample locker, the sample locker should be in a proper place well ventilated and separate and you know not just a tray somewhere in the engine room. Because we get back to the old problem of fire precautions in an engine room, the engine catches fire and you've got

a whole lot of sample bottles there then you're in a really difficult situation. So my main point here is that if you've got refuelling facilities you have to think of all the other add on problems such as what to do with samples.

Martin

Nigel, how many yachts do you know of that have got onboard refuelling and is this an issue?

Nigel

Of my group, probably 20, half of the ones we do something with.

Martin

And they all use this system?

Nigel

They all have onboard JET A1 and they all look after it in different ways!

Martin

And how many new builds are there do you think that will have—

Nigel

Well my basic brief to anybody is if you're going to build a boat and you're going to carry a helicopter with it, put fuel on there. Even if you don't intend to use it to be honest, because the retro position which I'm in with a couple of clients at the moment where they've decided they didn't want it to start with because it was all too difficult and now we're trying to put it on post delivery and it's a nightmare, in cost and in trying to find a place for it and getting the approval of various bodies.

Tork

And we haven't even discussed defuelling, which is a whole other can of worms or tank of worms. However I got a text earlier from someone— they're saying all maritime fire training courses cover all types of fires, therefore there's no need for additional training due to the quantity of JET A1 carried otherwise tanker crews would never get out of fire school.

Ian

I disagree with that. I've been on a STCW advance fire fighting course and there was no discussion of the handling of JET A1 fuel. It looks at the sort of fuels you would expect on board a vessel but nothing was mentioned about JET A1. I'm not particularly familiar with what the actual formal syllabus but as far as we're concerned there is extra training required in the use of JET A1 as outlined in SOLAS II-2.18.

Martin

Essentially because we're now 1½ minutes over time we'll break for ½ hour for coffee. Hang on, no, Tork? News just in. No, Alan, please, while Tork is playing with his—

Alan

Just while you sort that out. Maybe I can just make a comment, going back to the question you asked Martin, about certification and maybe I can enlighten the audience here about what we do at the moment for the offshore industry and the way we certify. We audit to 437 but every offshore installation both in UK and Continental shelf and on the Norwegian continental shelf now has a Helideck Certification Agency certificate. On that certificate it may well have a lot of non compliances and non conformities with CAP437. what I'm trying to say is that although that installation or vessel may not be able to comply fully, we produce a certificate with non conformances, which are then passed to the helicopter operators for them to assess whether they are happy to continue flying to that installation or vessel. We produce what we call an HLL which is a Helicopter Landing Limitations List of in excess of 600 rigs and vessels. The helicopter operator can reference that document and can see instantly whether there are any non compliances with CAP437 in terms of 5 in 1 falling gradient, turbulence, or whatever, and in consultation with the helicopter operator we will apply limitations. Although our remit is yet to be decided in exactly how we're going to do certification for the yacht industry I would maybe think that we would be able to do a similar type of process whereby we would audit to annex 6 but on any certificate there might well be limitations where full compliance may not be met. Obviously this is still very much in its discussion stage with the MCA but I suppose what I'm trying to say is if you cannot comply 100% all may not be lost. Is that fair comment?

Martin

Thank you very much. Panel, thank you —I think you're all here for the rest of today.

Tork

I have actually, it's less a question than a clarification from Michael Moore on the subject of crew. He writes: the question of whether a helicopter pilot is a member of crew is a question answered by both analysis of law and fact. Signing the ship's articles is not determinative if the alleged crew member did not sign, nor does a crew member have to hand reef and steer. All persons who are involved in the greater mission of the vessel are considered crew. In short, more or less permanent relationship of the helicopter crew to the vessel is the biggest factor in determining if air crew is also part of ship's crew.

Martin

Michael is a lawyer by the way! Thank you very much, gentlemen. I think you're here for the rest of the session today, so any questions please find these 3 gentlemen and we'll reconvene at 11.30 for Project Management here, Sailing & Equipment up in Room A.
