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6. CURRENT TRAINING: WHERE ARE WE?

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I appreciate very much being asked to speak at this simulator workshop. I am here purely as a 135 operator and a trainer of pilots. I am not going to even begin to try to address the technicalities involved in building, designing, or certifying a simulator. It's not my bag of tricks. However, I do believe it is very important that operators participate in this kind of seminar, because we are going to be the ultimate user of the product of this process. And by that I mean the advisory circular as well as the simulator itself. I am probably not going to use all the time allotted because I have only about three points that I would like to make and I can make them fairly short and sweet. Then we can go on to something else.

Initially, what I am going to say may sound like an advertisement for Petroleum Helicopters, Inc. (PHI). But it is not intended to be that; it is just an effort to try to show you the scope of what we actually do. If you will just bear with me you will understand my approach in just a second.

Most of the people in the industry have heard of Petroleum Helicopters, but very few understand what we do and how we go about getting it done. We have about 2,400 employees, of whom about 800 are mechanics, and about 750 pilots. And we have 17 bases scattered across the Gulf of Mexico, from Rockport, Texas, to Mobile, Alabama. We operate about 300 helicopters, and we fly VFR and IFR up to about 175 miles offshore. The day is coming when our nearest IFR alternate will be the Yucatan Peninsula. There are oil leases, drilling leases that far offshore that have been sold; they are just waiting to be drilled. That day is coming. So the world we operate in is undergoing constant change, too. We also operate 10 F-76s in support of EMS base hospital programs. Collectively, we and our competitors operate approximately 600 helicopters every day in the Gulf of Mexico, primarily in support of the offshore petroleum industry.

To crew our 300 helicopters, which comprise seven different makes and models, our 750 pilots require about 1,700 to 1,800 check rides per year. Those are recurrent training check rides, and have nothing to do with transition, upgrades, or initial—that sort of thing. Just the recurrent training of the 750 pilots. Two hundred fifty pilots operate under instrument flying rules. These 250 IFR crewmen receive about 500 check rides, each of which takes about an hour and a half. Some are quite a bit longer, depending on where the aircraft is based and where the precision approach is located. This equates to about 750 flight hours annually just to maintain our IFR crews.

To give you an idea of the cost to us as a user, the average direct operating cost of the aircraft is about $1,750 per hour. That does not include the costs of our facilities, insurance, or other expenses involved. The recurrent training needs just described cost about $1.3 million per year. This figure does not address the FAR 61 recent-experience requirement; this is purely the Part 135.297 check ride. And we are required in many cases to maintain this Part 61 recent-experience. I am talking about the 6, 6, and 6 (6 approaches, 6 hr instruments, in last 6 months).

Where are we now with our training needs? Virtually as we speak, we are in the process of upgrading 10 crewmen to the status of IFR, SICs. To do that will take about 120 flight hours, an average of 12 hours each. That is about $21,000 apiece, or a total of $210,000 in direct operating costs alone. This summer we are going to upgrade an additional 18 pilots, 12 of whom will go to PIC standards and 6 to SIC standards. This is going to require approximately 216 hours, at a cost to us of about $378,000.

The point I am trying to make is that we do this without a simulator. I wish we were using a good, authorized simulator. Obviously it would provide not only what I think would be a better trained crew, but it would go a long way toward reducing our costs.

Just as a note of interest, I am working with FlightSafety right now to try to purchase about a 100-hour block of simulator time at our Cleveland base. We won't get

simulator training credit from the FAA, because I am going to use a BE-200 simulator, which is all they have. The truth of the matter is it will cut down my time, it will cut down the cost, and I am going to do it whether the FAA recognizes it or not.

This should provide a glimpse of the tip of the iceberg of the training needs that we have at PHI. If you stop and think about that, with 600 helicopters out there, of which we have 300, obviously this is only about half the cost that is involved. So in answer to an earlier question about the potential use of a simulator like this, we would probably use it about 1,250 hours a year if available and affordable. By available I mean fairly accessible, at a nearby location.

Before PHI leases or operates any simulator on a regular basis, there are criteria that the simulator has to meet. This is because our costs are already so high that the use of a simulator must help me reduce those costs, as well as provide that extra level of training. I understand fully that a pilot who has been trained and retrained in a simulator gets many opportunities to do a lot of extra practice of various maneuvers. I have been through the S-76 over at FlightSafety; it is a phenomenal piece of machinery as far as I am concerned.

Any simulator we use must be approved for credit toward the training that we do. We do FAR 135.293 check rides, and it should be possible to do some of that in a simulator. But we should be able to do all of the FAR 135.297 check rides in that simulator. The simulator must be practical. By that I mean that in addition to the usual IFR features that we think about—the ILS, the VOR, the SDFs, the other type approaches—the simulator must address offshore flying techniques.

Specifically I am talking about airborne radar approaches, HEDA let-downs and what is referred to as offshore standard approach procedure (OSAP). All of these approaches use a combination of interface with weather-avoidance radar and the LORAN. These approaches are fairly commonplace and they are fairly simple, but they must be checked in an ongoing check-ride program. These approaches are part of the reason why our check rides are so long just for an FAR 135.297 check. If the aircraft is based in Lafayette, Louisiana, it is about 40 miles to the Gulf, but it's about 50 miles to a place where I can execute a radar airborne approach. I have to get over the water to do that.

I might comment here on the practicality of something that was mentioned earlier, the necessity to do visual-reference maneuvers. I am not totally convinced that the simulator should be able to do a slope landing. I do not think it should be able to do a confined area, and I am not interested in doing an autorotation. I would not dream of trying to do Part 133 external loads in a simulator. Those are ground-reference maneuvers, and they are maneuvers that are best practiced, in my opinion, in a helicopter. Those are specialized procedures. I want no part of trying to certify a pilot to do slope landings in a simulator. To me, it's just not necessary. I want to do the other things, like we said, the high-side and the low-side governor failures, things I can't simulate in a helicopter.

The final criteria that a simulator must meet before PHI or any other operator is going to use it, have to do with cost. I heard mention earlier about $12 million simulators. I would like to own a $12 million simulator. In Lafayette, Louisiana, the use rate would be fairly high, because of the number of pilots there. And yet the bottom line is this: that 2,000 hours a year is not going to cause Greg McGowan to put a $12 million simulator in Lafayette. These simulators are simply priced totally out of the reach of operators such as ourselves.

I cannot afford to buy, even over the long term, a $12 million simulator. I would like to have one nearby that I could use, though. Contrary to what our monthly lease rates might indicate, there is not a whole lot of markup in offshore helicopter transportation prices.

The final point that I want to make is concerned with the advisory circular itself. The stated purpose of the advisory circular is not to mandate, but to provide a way to do things. Well, there have been advisory circulars over the years that were designed to be just that, advisory, that wind up being regulatory because there is no other accepted way to do what those advisory circulars approve. I am referring to Advisory Circular 90.80 as a good example.

For a long time we did airborne radar approaches offshore, routinely, day in, day out. Advisory Circular 90.80 gave an acceptable way to do airborne-radar approaches. The truth of the matter was the advisory circular was based on a piece of equipment that was not available to the public. There was no way we could comply with the Circular. Since it was not mandatory we just went about our business. But one day the FAA said if you are not doing it according to 90.80, you cannot do it anymore, so get into compliance. That is the point I am trying to make. When the advisory circular is written, you need to put yourselves in the users' shoes so you understand their needs, as well what Dick Birnbach said this morning about writing the "paper." He made the comment, "I don't

use them, I don't fly, I only write the paper." Well, we had better consider the people who have to use the advisory circular, as well as the simulator itself. That basically concludes what I have to say. I will be happy to take whatever questions you have.

MR. McDANIEL: In talking with different people about what is required of a simulator and what is not, there are questions such as is motion good, is visual good, and do you need motion. And in one of your comments about the advisability of having a simulator to do slope-type operations, autorotations, etc., you mentioned external loads. I guess my question is if the simulator has the fidelity, and can do those things, is it of value to have that capability? I would take it as a given that, yes, you would want to confirm that training capability or the capability of the pilot to conduct those operations in the aircraft. But is it of training value to be able to do that when it is cheaper to do it in a simulator? You made the statement that it is of no value to you and that you do not care to see that in a simulator.

MR. GOLDEN: Here we get into engineering. The engineering and design features that have to be built in that will realistically represent a sling-load are going to be phenomenal. The same thing is true of a slope. I don't think what you see in a simulator when doing a slope operation is going to have any real bearing on what it is like in the real world of helicopters. So how much does this cost? It comes down to money. Sure, given enough time, given enough engineering, we would come up with a simulator that does a fair or reasonable job of simulating slope. But is it really necessary for what I need to do? The S-76A simulator, which has been available since 1971, does a phenomenal job of everything I need to do except for the LORAN radar interface.

MR. HWOSCHINSKY: You said you are a trainer of pilots, but you are a trainer of instructors as well. How would you envision the use of simulators in training your instructors, particularly given the fact they need to know the limitations of the equipment itself?

MR GOLDEN: A good question. I cannot possibly do all the training that PHI requires. I have 17 instructors working for me and I can tell you that the training of those 17 instructors is ongoing continually. It is necessary. The training they have to go through is nonstop. Training an instructor for a simulator is something I have never done in a full-blown motion simulator, but I bet Greg [McGowan] can tell you about that.

We did build in-house several years ago what we call a 206 procedures trainer; there is only one like it that I am aware of. This device is capable of doing hot starts, premature light-offs, and fires; you can simulate malfunctions through the use of switches. It does not fly, and none of the flight instruments move. But all the problems associated with starts, in-flight routine, emergency sort of stuff, you can do on this simple little device. We had problems with the way we were doing things in that simulator, however. We had to work a pretty good scenario just teaching the guys how to use that simple training device. I hesitate to think how many flight instructors or simulator instructors FlightSafety has and how much their training bill is just to qualify to maintain those instructors. It has to be staggering.

MR. WARTH: I run into your helicopters all the time.

MR GOLDEN: Not literally.

MR. WARTH: I was interested in the aircraft operating cost you mentioned—the $1700 per hour. Does that include instructor time?

MR. GOLDEN: No, just the operating cost of the machine. That was an average for three helicopters. The cost for the S-76 is considerably higher than that.

MR. WARTH: Oh, really? I was interested because for our two Coast Guard helicopters we have a cost of about $1,200 an hour. Sounds like a similar basis of cost. And it is only about $120 an hour for the simulator, so there is a big cost benefit for us to use the simulators we have.

MR. GOLDEN: Greg, can I have some of that $120-an-hour simulator time?

MR. WARTH: If you want to fly an H-3 or H-65, sure.

MR. GOLDEN: I don't. Sorry.

MR. WARTH: I am also curious about autorotation.

MR. GOLDEN: In the simulator?

MR. WARTH: Right. That is a big thing for us.

MR. GOLDEN: Well, the second time I went over to FlightSafety to fly the S-76A, we spent probably 35 or 40 minutes doing autorotations. I forget the instructor's name now, but he said look, what you do is you descend down to 100 feet (this may be correct, it may not be), 20° nose up, go down 20 feet, and pull a pitch and land, so I did exactly that. Just glued myself to the gauges, went down and did what he said and the autorotation was successful. The other person who was with me was a full-blown captain who probably had about 15,000 hours of flight time. He could autorotate virtually everything that flew, but he spent the next 35 or 40 minutes trying to get one to come out right on the S-76. I maintain that

exercise did not help him in that particular respect. I am positive about how the man autorotates. He simply was not good at flying a simulator.

MR. WARTH: In that case it was a question of the fidelity of the simulator.

MR. GOLDEN: Probably. I am not all that impressed with ground-reference maneuvers in a simulator. But I don't think in any ATP check ride that a pilot who has that level of experience should be required to demonstrate a 360° turn.

MR. WARTH: How about entry-level pilots who have to do IFR autos? If you are going to train pilots in simulators, presumably you are going to train . . .

MR. GOLDEN: I am talking about the touchdown portion of the autorotation. I think that would be best performed in the aircraft.

MR. WARTH: I understand. Thank you.

MR. BOOTHE: I just wanted to mention that your experience in the S-76A is probably one of the reasons why it is not a qualified simulator. It is a training device. That gets to a point that made this morning: the device has to support the training or checking maneuver that is to be done. We had this same experience with airplanes. I remember in one of the first Level C simulators, we could not land Phase 2. The instructor said, well, just stay about 200 feet, pull throttles to auto, pull attitude 8°. We said we do not land the airplane like that. I think that is the same thing you are experiencing.

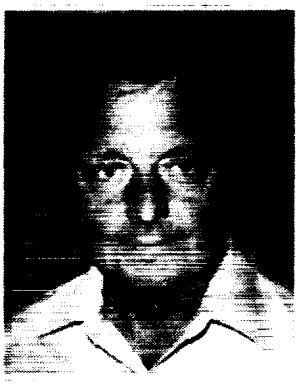
MR. GOLDEN: I would like to respond to that just in part. There are so many other things that the simulator will do that I think we should be able to receive recognition and credit for doing those. Granted, if I have to do a touchdown autorotation, which I don't, by the way, then I should be able to do that in the aircraft. But I am not required to do that in the aircraft, and therefore I should not be required to do it in the simulator for certification purposes.

MR. BOOTHE: I agree with that, I just wanted to touch on the four maneuvers. As somebody pointed out, maybe they are the wrong four. As regulators we are conservative. Kind of like turtles, we stick our noses out just a little bit before we stick our necks out. I think that is really what we are talking about with the S-76B. We never before in the civil segment qualified a simulator of that sophistication. And if you recall, when we started with airplanes we had four maneuvers, I think, that had to be completed in the airplane. That went on for years until finally in 1978 we got to landing maneuver, then advanced simulation plan, and we still had growing pains. In fact, the Royal Aeronautical Society is having a meeting in November about the extent to which we can trust simulation. I think it is a good subject.

But we needed something to validate what was just done in the simulator and I will admit that the selection of those maneuvers was somewhat arbitrary. But we did not feel we were at the point where we could just say go do an ATP check in that simulator, the first one ever. We had never qualified one before, and we did not have adequate data. We made up for that with the routine that I mentioned this morning. And so we were very conservative about it. Maybe we have enough data now—that's the other thing. There were supposed to be data kept and I think Greg has some of them. A local office of the FAA was to look at how successful we are in that process, at how many pilots fail to transition behavior that was demonstrated in the simulator to the aircraft. And I don't know how much of that we have, but maybe it's time to ask the question again. I don't want you to think we are stuck with four maneuvers for ever and ever; we are not.

Regarding the question, why can't you do an instrument competency check or instrument rating check, a petition would help. We do look at those. Thank you.

MR. McGOWAN: Warren talked to me before we started back. I think we need to clarify that. What Curt [Treichel] was mentioning in his presentation is an instrument add-on and we did not make application for an instrument add-on. What we did make application for was certified-flight-instructor-instrument-helicopter in the simulator. And that is what the statement that Curt quoted in his presentation was about. We were denied that. We did make a request for an exemption for certified-flight-instructor-instrument-helicopter. One of the reasons we were given for the denial of the application was that it had never been done in a fixed-wing simulator. So Ed [Boothe], you are right, we never have asked for an exemption to the helicopter instrument add-on, but we did make it for certified-flight-instructor-instrument.



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