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ATLANTA MEETING

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AL HYDE: I'm Al Hyde with the Brookings Institution, for the record, and I want to welcome everyone who's here for this first of a series of regional meetings and sessions talking about aerial firefighting issues. From now until 10:00 we're going to have an interactive panel discussion with Bill Broadwell and Terry Unsworth (sp), who will introduce themselves after the panel has done their quick introductions, and the two co-chairs, Jim Hall and Jim Hull, will be running the next portion of the session, and we go from there.

Bill, do you want to do a quick intro in terms of who you are and for the record and we'll go through?

BILL SCOTT: I'm Bill Scott. I'm the Rocky Mountain bureau chief for *Aviation Week* magazine and have about 12 years of flight test experience as a flight test engineer and a pilot, commercial instrument, multi-engine. I'm an electrical engineer by background.

JIM HALL: My name is Jim Hall and I am presently with Hall and Associates, my own firm in Washington, DC and Chattanooga, Tennessee. Previous to this position I served almost seven years -- well, a little over seven years at the National Transportation Safety Board and have specialized my work in the field of transportation.

JIM HULL: And I'm Jim Hull. I'm State Forester of Texas, serve as chair of the Fire Committee of the National Association of State Foresters, serve on the National Wildland Fire Leadership Council, work a lot with, of course, all the state foresters and all the federal agency land management agencies.

EARL MCKINNEY: I'm Early McKinney, a former military pilot and currently a commercial multi-engine pilot, as Bill is also, and I'm on the faculty of Bowling Green State University in Ohio.

MR.HALL: We yesterday had the opportunity to be briefed by the National Transportation Safety Board, the Federal Aviation Administration, as well as the aviation folks at the Forest Service and this is our first public venture, so we welcome you gentlemen and please proceed.

TERRY UNSWORTH: Terry Unsworth. I'm the president and CEO of Aero Union Corporation, based in Chico, California, with the privilege of that position since

January of this year and previously CEO of companies in the UK, have lived in the U.S. from the early 90s and have the pleasure of working with Boeing Defense and Space Group, the United Technologies USBI down at Cape Canaveral and various other organizations related to aerospace from a general management point of view; and a pleasure being here today.

BILL BROADWELL: I'm Bill Broadwell. I'm the executive director of the Aerial Firefighting Industry Association and I've been in that position since March of 1992. Previous to that I had spent 30 years in the Navy as a pilot and maritime patrol, flown some of these airplanes that we're flying nowadays in aerial firefighting, and again it's a pleasure to be here.

JIM HALL: Who is going to proceed?

TERRY UNSWORTH: I'll kick off.

BILL BROADWELL: Please do.

TERRY UNSWORTH: What I had prepared and I did give you a handout based on this was just some general information to, you know, I don't know what you don't know or do know, but --

JIM HALL: Why don't you assume we know nothing.

TERRY UNSWORTH: Okay.

JIM HALL: And that way we're both on safe ground.

TERRY UNSWORTH: All right. I wanted to just give an outline of our operation but at the same time to give some objective suggestions as to a way forward. And so please if you have any questions of me while I'm going through this at any time please feel free to ask and we do encourage and I believe we've already established a date for a visit to Aero Union Corporation in Chico, California. Hopefully you'll al be able to make that, but I think that's still in the arrangements.

But anyway Aero Union Corporation, if I can just refer you to this handout I've given you, Aero Union Corporation, we've been around since 1961 and we certainly have the reputation as being the leader in the industry and not only the leader but also the high standards in the industry. And we are also considered the most influential with the association and as an example of that recently we almost forced the issue that the association needed to get together as a matter of urgency to take a serious look at the way forward and the plan to go forward with credibility as an association in the industry. So that meeting is taking place early October.

We do have the largest fixed wing tanker fleet, to the best of my knowledge, in the U.S., maybe in the world, and we are seen to be the most progressive. As Earl

mentioned, later one of my other divisions -- we have four divisions altogether, air tanker operations being one of those -- one of my other divisions, we actually design, build and install firefighting equipment onto various platforms, both fixed wing and rotary. In addition to that, we do in-flight refueling equipment and (SENSO ?) products for the military and government.

We have a strong management team in place in air tanker operations. All of the senior managers there are retired, early retired, should I say, senior officers from either the U.S. Air Force or the U.S. Navy, a tremendous amount of experience not only in, of course, management but also in maintenance and operations of aircraft.

The maintenance director you see there has a strong team again of line managers, who are responsible for various aspects, whether it be structural, whether it be components or avionics and so on. And those line managers each have leads and mechanics working underneath them.

Those mechanics, of course, and the leads are not only expected to work at our base operation in Chico, California but they're also expected to work in the field at the tanker bases around the country.

The flight operations director has responsibility for the crews and we have a chief pilot and actually a very experienced chief pilot, who makes a point of getting out into the field and flying with the crews on a regular basis, so we have an ongoing monitoring of proficiency.

We have 13 aircraft altogether: 8 P-3s, 3 P-2s and 2 DC-4s. And what I've done there is I've had the audacity to put down the number of hours total time, average total time and highest and lowest for each one of those platforms.

And all the aircraft are operating under Part 91 and 137 of the FARs.

The P3 we see as by far the best value and the reasons for that are not only a lower operating cost that helps us to be competitive in the marketplace, but also the supportability. We do have a pool of resource to call from for employees with people retiring from the Navy who are familiar with P-3s. We do have tremendous liaison with Lockheed and support with Lockheed. So on a go-forward basis the P3 is certainly the best platform. Also, reliable, competitive reliability, of course, speed in getting to the incident and all of our aircraft are fitted with our own designed constant flow, computer controlled tank and including the P-3s, of course.

So as a matter of interest, the Navy determined the structural life of the P-3s, as you see there, is 35,000 hours. That's on the Type As, the ones we operate.

Just a quick overview on the flight crews themselves, you see here we've got -- all the hours quoted here, incidentally, gentlemen, are all firefighting hours. They're not just general flight hours; they're all aerial firefighting flight hours. And you see there a

wealth of experience with our captains and our copilots. And one of the interesting things that we've always tried to do when we've recruited over the years is to recruit qualified A&Ps as well. And the advantage to that, one of the advantages to that is not only, of course, the handling of the aircraft, a better understanding, but also when it comes to troubleshooting and reporting any problems it helps us to troubleshoot those easier and assign the correct resource and the most appropriate action.

MR.: May I ask a question at that point?

TERRY UNSWORTH: Sure.

MR.: You mentioned you have some backup pages on the P3, which tell us that it is the best value and you've got support from the manufacturer and you've got a pool of experienced personnel and you've got a structural life of 35,000 hours, but there's no mention of the other two aircraft. Could you give us the same detail on the other two aircraft?

TERRY UNSWORTH: Yeah, I should be able to. I should have it in here. If you'll give me a moment while I'm continuing with this, if I can flick through these and dig it out I'll certainly give you that.

MR.: And when was that originally manufactured, these aircraft?

TERRY UNSWORTH: The P-3s were manufactured, the ones we have in '66, yeah, '63, '66.

MR.: And I guess the other question I've got --

TERRY UNSWORTH: The P-2s were '55, '60 and the DC-4s '45.

MR.: '45 and the P3 was what did you say?

TERRY UNSWORTH: '63 to '66. If I had page numbers on there I'd be able to --

MR.: And the other one?

TERRY UNSWORTH: The P-2s were '55 to '60.

MR.: '55 to '60.

TERRY UNSWORTH: Between '55 and '60.

MR.: And they all have right now what type of certificate?

TERRY UNSWORTH: The type of certificates are under Part 91 and 137.

MR.: Those are operating certificates, are they not?

TERRY UNSWORTH: Yes.

MR.: Because ex military airplanes do not get certified in the analogous sense of a 757 or something.

TERRY UNSWORTH: No.

MR.: So do you know whether any of these were ever tested for the -- they're under restricted category at the moment?

TERRY UNSWORTH: Yes, sure.

MR.: Was there ever any design work or look at testing them for the usage you have now?

TERRY UNSWORTH: Oh, absolutely, yes. And the STCs are in there because we have the STCs for the tanks on those and we did the necessary work from a structure point of view during the design and build of those.

MR.: In terms of adding the additional tanks.

TERRY UNSWORTH: Yes. And the necessary licenses.

MR.: Any type of looking at the design of the aircraft to be sure that it could perform the functions you are --

TERRY UNSWORTH: Yes, sir.

MR.: Okay. All right.

TERRY UNSWORTH: Okay? The flight crews themselves, as I was saying, they have extensive experience and there's also for informational purposes average salaries for those copilots, the captains and copilots.

MR.: The 14 years, Terry, that's the average I guess for the whole pilot community?

TERRY UNSWORTH: Yes. Yeah, for tenure, yes.

MR.: Not just captains?

TERRY UNSWORTH: With Aero Union.

MR.: Yes, that's what I mean.

TERRY UNSWORTH: Yes.

MR.: Terry, when those crews go out in the field, do they stay on pilot-copilot for the entire season?

TERRY UNSWORTH: Yes, it's important to us that they do that, because we try and partner appropriately and based on characters and performance and so on and experience levels and we monitor that partnership on an ongoing basis. Our chief pilot, as I mentioned earlier, regularly goes out to assess that. We consider that -- under the circumstances of the operation, we consider that of utmost importance.

MR.: And that couple stays married for several seasons or just the one?

TERRY UNSWORTH: Ideally into ongoing seasons, absolutely, yes, ideally. It doesn't always quite work out that way because of people changing companies and so on.

MR.: Right.

MR.: Within the structure of your organization, who has responsibility for safety, the safety program?

TERRY UNSWORTH: I do.

MR.: Okay.

TERRY UNSWORTH: I'm ultimately responsible for safety in the whole of the organization.

MR.: Okay. As the president and CEO you also carry the safety responsibility?

TERRY UNSWORTH: Absolutely.

MR.: Do you have time to do that?

TERRY UNSWORTH: I've always considered an accountable role for any president and CEO to be responsible for safety, to be responsible for the employees and customers and responsible for equipment and everything else -- ultimately. Ultimately.

MR.: Anyone between you and then the crew in terms of your safety program?

TERRY UNSWORTH: Yes, we have my director of HR is responsible for the day-to-day operational safety program throughout the four divisions, air tanker operations being one of them. We have the appropriate safety manager in the divisions and those people are also aligned with QA typically, Quality Assurance in the divisions as well.

We see safety in the organization being an integral part of every process. We don't divorce the two, so in other words if we are trying to improve a process we are also trying to improve safety in the process at the same time.

MR.: Do any of your aircraft have recorders?

TERRY UNSWORTH: No, unfortunately not. We did at one time apparently many years ago have structural recorders of some type or monitoring devices where we could measure G-loads and so on. We're looking to reintroduce those and introduce forms of data acquisition recorders in some way. We're actually just in the process of installing GPS link tracking devices as well and multi-function displays with link to TCAD units.

MR.: And the purpose of reinstalling recorders is?

TERRY UNSWORTH: I think the more information we have the more we can be confident of what's happening in the operation --

MR.: Just closer tracking the health of the aircraft is an easy way to say it.

TERRY UNSWORTH: Yeah, sure. And it helps us in all aspects, whether it be ongoing pilot training or whether it be maintenance.

MR.: Please proceed.

TERRY UNSWORTH: So before season, preseason, as we say, the flight crew undergo training regardless of experience, regardless of the experience level they may have. In fact, we try to utilize some of that experience to help train the others, of course. And that includes not only ground safety but also systems and, as you can see there, some simulator time and actual flight time. We do some practice drops up in the North in the California Valley and again our chief pilots and our chief engineers and chief pilots are monitoring not only the aircraft and the crews but the maintenance as well, of course.

MR.: I hate to be so basic, but how many people, humans are we talking about going through the training?

TERRY UNSWORTH: Twenty-eight, 28 pilots, yeah.

MR.: And 28 crew. Anyone on --

TERRY UNSWORTH: And the maintenance crews go through their own training. There's 42 of those.

MR.: Forty-two maintenance. And that's --

TERRY UNSWORTH: Forty-two mechanics plus leads.

MR.: And that's separate. And is that -- that's everybody? That's the universe?

TERRY UNSWORTH: Yeah, we've got 42 mechanics, 8 leads and so on. So it's 50 out all together, but the leads are responsible for some of the training, of course, for doing some of the training.

MR.: No, I understand. And could you give us an idea of how much time, how many hours or days are dedicated to the training?

TERRY UNSWORTH: The pilots come in for five days preseason and sometimes that goes for weather reasons or whatever it may be that can be extended, but typically five days minimum. Again, it depends on the level of experience with those folks. The maintenance crews, every Wednesday morning is a training morning and in addition to that there's a particular topic that's covered on the Wednesday morning sessions. In addition to that then there's specific training related to a technical subject of some kind.

MR.: And these are all year-round employees or seasonal employees?

TERRY UNSWORTH: These are all -- well, they're all employees. The pilot, the crews, the maintenance are all year-round. The flight crews are employed and therefore entitled to all the benefits and 401(k)s and so on. But they don't stay with us throughout the whole year. They may study or fly cloud seating or even agricultural work in between.

MR.: So every Wednesday year round is half a day is for training --

TERRY UNSWORTH: For the maintenance.

MR.: -- for the maintenance.

TERRY UNSWORTH: Yeah.

MR.: And is that being done because you are a good human being or is that being done because of some federal regulation?

TERRY UNSWORTH: Well, it's being done because Aero Union chose to do it that way, and I'm a good human being as well, yeah.

MR.: Well, you stand up for yourself. I just want to be -- but there's no federal requirement that you have a certain amount of training.

TERRY UNSWORTH: Well, we are an FAA -- you know, we follow -- we have an FAA program and we receive the appropriate diamond and silver awards as an organization and we have received those. And our own people, of course, receive the

awards as individuals for that training. So there is a requirement from an FAA point of view, yes.

MR.: And do you know what that requirement is?

TERRY UNSWORTH: We have to do -- Bill, you could probably help me out on this. Bill is just saying there's a contractual requirement to do training. I wasn't aware it was contractual but that's okay, because --

BILL BROADWELL: Well, it's (loose ?). It consists now of the pilots training video that the Forest Service puts (inaudible.)

TERRY UNSWORTH: We're talking about maintenance crews now.

MR.: Oh, you're talking about maintenance. No, no, no. (Off mike.)

MR.: Well, why don't we do first pilots and then maintenance, so we understand.

TERRY UNSWORTH: There's a contractual requirement for pilots, yes, and we --

MR.: And that's in your air tanker contract?

TERRY UNSWORTH: Yes. And we go -- we as Aero Union go above and beyond that. We believe that it's prudent to cover all these topics here. I haven't got a copy of the contract in front of me, but I don't think all of these topics are actually contractually required that you see here. Is that correct?

MR.: (Off mike.)

TERRY UNSWORTH: Right.

MR.: I've got a contract up in my room I'll bring down, but how often do you see somebody from the Forest Service in terms of coming in to look at your operations and out of what office or region do they come from?

TERRY UNSWORTH: We regularly see folks from Boise. Unfortunately, we don't see folks too often from Washington although we'd like to. And if you want any particular names, Paul Markowitz (sp) is a regular visitor to Aero Union for two reasons, not only from an air tanker operation point of view but we're also developing the 4,000 gallon composite AFFS unit for the Air National Guard and the Forest Service and Paul Markowitz has a technical responsibility for that.

MR.: Is he there as a contracting officer, is he there as an auditor, is he there as a visitor of the Forest Service?

TERRY UNSWORTH: Paul and one or two of his colleagues will come in to -- they do a preseason inspection and that's actually on a later slide coming up soon. And one of the suggestions we have related to that is that the inspection that's performed we believe requires significant review and quite frankly either needs to be improved or stopped because the accountability is with us, not with the Forest Service.

And so Paul or one or two of his colleagues there will visit us as a requirement preseason to not only sign off on the aircraft but also sign off on the pilots basically.

And besides that, the contracting officer, Rick Willis (sp), comes down very occasionally and actually his last visit was about two weeks ago, but it's very occasional.

MR.: And do you mind telling us what the gross value of the contract is you have with the Forest Service on an annual basis or if that's proprietary I understand?

TERRY UNSWORTH: No. It's this year will probably be about $14 million.

MR.: Fourteen million.

Yeah, I'd be very interested because there's an internal audit that was done in '96 that raised some issues and concerns about the Forest Service's preseason inspections, so I would love to -- if you've got that, I'll shut up. My other panel members may have some other info.

TERRY UNSWORTH: It was a point of discussion in a couple of slides further on. And as I say, a serious suggestion --

MR.: What would be very helpful to me this morning, my panel members, we all come at this from different backgrounds but what would be helpful to me and maybe also helpful to the panel is to get some idea of not just your mission and your equipment and your internals but how then that relates to the Forest Service, state of California, any other type of governmental entities that you have some type of reporting and/or other nexus to.

TERRY UNSWORTH: Sure. And that's why I think we tried to do this throughout this and the reason being that I looked at your charter and the key topics under your charter and hopefully in what I've covered here addresses most if not all of those in some way. But yes, I'll certainly add that, Mr. Chairman.

MR.: Terry, before you move on, can you say a few more things about the flight crew training?

TERRY UNSWORTH: Yeah, sure, yeah.

MR.: What I'm interested in is are there opportunities to train with lead airplane pilots? We've heard some things about the academy, the firefighters academy, and the status of that in the future?

TERRY UNSWORTH: Excellent point. One of the suggestions in here is that we do that. The flight training that we do is practice drops further up the Valley. It would be good to have almost like a battle simulation where we are involved in simulations with the Forest Service, with the ground folks, with the lead planes, with the ASMs to give a more accurate simulation, and I think that would be worth its weight many times over.

MR.: And your pilots, there's a firefighters academy or air fire -- I'm not sure I've got the right term, but --

MR.: National Aerial Firefighters Academy.

TERRY UNSWORTH: Right.

MR.: And as I understood, there are some tanker pilots that come to that, but I didn't know that was --

TERRY UNSWORTH: It's a very -- my understanding of that is it's a very loose relationship almost that needs to be strengthened because there either needs to be -- one of the suggestions I have in here is an air tanker school, an air tanker pilots school and we are willing to operate that. We've been seriously considering doing that for the industry because we have a lot of the modules, if you like, already built, because that's what we use for our own people. But we need to get together with the NAFA to see where there is the synergies rather than duplicating effort. But there's no mandate for -- my understanding is, and Bill can correct me that there's no mandate for the air tanker pilots to attend any particular course at NAFA. Is that right?

BILL BROADWELL: Can I just address that subject a minute?

TERRY UNSWORTH: Yeah, sure.

BILL BROADWELL: The issue of training with lead planes in the NAFA school has been discussed and is desirable, but the bottom line was that the money, there's no money in the budget, because if they're going to get an airplane in they've got to get a couple air tankers and then they've got the lead planes and the Forest Service just doesn't have the money to contract for that extra air tankers and so forth. So that has never occurred but it's one of those things, as Terry said, that we'd like to see and we'll probably be discussing in our own meeting.

MR.: I don't know, did you all cover this National Firefighting Academy in Boise? Is there a building, is that a location?

BILL BROADWELL: MR.: Yes, it's down at Morana.

MR.: There's a staff?

BILL BROADWELL: It's a staff and they --

MR.: How large, do we know?

BILL BROADWELL: I don't know how large the staff is, but they do an excellent job of providing facilities and --

MR.: And who pays?

BILL BROADWELL: The Forest Service is paying for that.

MR.: Okay, but let's say Aero Union wants to -- have you ever sent any of your pilots to that training?

TERRY UNSWORTH: Oh, yes, absolutely.

MR.: Do you pay for it?

TERRY UNSWORTH: We pay for it, sure.

BILL BROADWELL: They paid for the room and board and transportation.

MR.: But you don't pay for the training itself?

BILL BROADWELL: It costs the companies nothing to enter the school.

MR.: And that is funded how?

BILL BROADWELL: The school is funded by the Forest Service.

MR.: By the Forest Service.

BILL BROADWELL: That's a legitimate part of one of the courses that they fund through their budget process. There's about 55 air tanker related people or aerial firefighting people that attend a year. That's about the max that they can attend. There's no requirement. Frankly, in the past operators have resisted being told that they have to send their people through it at a certain time, but most people have adapted the idea that before any of them become captains they had at least had to attend the school once.

MR.: Do you know how many of your pilots have attended?

TERRY UNSWORTH: All the captains have attended some training down at that school. The most recent one was crew resource management.

MR.: Crew resource management was another topic I wanted to ask. Is that a subject at the Firefighters Academy?

TERRY UNSWORTH: Yeah, that was the last course that some of our folks attended.

MR.: Okay. Can you tell us --

MR.: Al, could you get -- I apologize. Earl, let me just -- could you get me the budget so far as sort of get us a budget last year for the Academy? I'm sorry.

MR.: And, Bill, maybe you could talk to this. What's the state of the art in terms of simulators for airplanes that are 60 years old? I mean, I know it's instrument simulator; I'm just curious, can you --

BILL BROADWELL: Well, a lot of those core people are using simulators for instrument training and stuff like that, but there's nothing in there that will teach them the knowledge for the air tankers that they're flying. They're using commercial simulators that will at least give them the pilot techniques for instrument flying and so forth.

TERRY UNSWORTH: And those are the simulators we're using at the moment, instrument simulators. We are, however, we've just opened an inquiry with -- and the company name slips me actually, but they do the P3 simulators for the Navy and we've approached them and asked them if they could do something for us in an air tanker operation.

MR.: But currently you send your people to this company that does the training for P-3s someplace else or is this local in Chico that you --

TERRY UNSWORTH: Are you talking about the instrument simulator?

MR.: Right.

TERRY UNSWORTH: We have that at our base.

MR.: Okay. And the same thing for the other two airplanes, the three different air tankers?

TERRY UNSWORTH: Yes, yeah.

MR.: And excuse me, Terry, but those instrument trainers, can you just describe them? Are they desktop type trainers?

TERRY UNSWORTH: They're the desktop type trainer, yeah, sure.

MR.: So it's pretty much general instrument training --

TERRY UNSWORTH: Absolutely.

MR.: -- as opposed to aircraft specific training?

TERRY UNSWORTH: Yeah. And that's why we wanted to see if we could do something more aircraft specific with the company I mentioned.

MR.: So you just lease time in a P3 simulator somewhere?

TERRY UNSWORTH: Yeah, maybe that will be the best arrangement, yes. I wouldn't like to buy one.

Okay? So and likewise the maintenance crew training, ground safety again is a key issue, albeit our maintenance crews are not loading aircraft with a retardant and in that respect, but the tanker bases it's important they understand the ground safety aspects, as well as the safety with maintenance on the base.

We have an emergency maintenance coordinator --

MR.: Who is responsible for the curriculum for your maintenance training?

TERRY UNSWORTH: Our VP of operations and the director of maintenance are responsible for that.

MR.: And is there a written curriculum?

TERRY UNSWORTH: Yes, sir. Yes. And we record the training that people have had throughout the year so we have a database of that. And we do refresher training, of course. We don't assume that they're still current in their minds.

MR.: And then maybe later, Bill, you're going to address the same sort of subject on an industry wide basis to give us an idea of how the other operators do their training?

BILL BROADWELL: Uh, no, because I don't frankly have a good idea of what the depth of training is in the various companies. When I initially got this job in '92 I visited all the companies and some of them, the larger ones are very well set up and holding (inaudible) classes and things of that nature, but I couldn't tell you about some of the smaller ones.

TERRY UNSWORTH: Can I ask you a question as a matter of interest? Is the panel going to visit any other operators in the field?

MR.: The panel has been squeezed by the Forest Service and the Brookings Institution on the amount of time we have and we are already -- and we're going to do the best we can. But we would like to. I'd like very much to and I think all the panel would. So the first thing we've got to do is deal with this agenda, right, and hearings that we've got all over the country. So we'll certainly try to do that and we're welcome to any input. Anybody wants to fly into Chattanooga, Tennessee, they can come visit me at my house, we'll sit around the pool and talk about anything anybody wants to talk about over the weekend. And I'll try and find a weekend. If we can visit on weekends, that would help.

TERRY UNSWORTH: You're quite welcome to, you have an open invite, as you know, too. I think the intent is on October 25th but if it's better to do that on weekend, then fine, we'll do that. We're operational all weekend anyway.

BILL BROADWELL: I'd recommend you look at several just to get a perspective of the small versus the large. You're looking at the large and (inaudible) one of the leaders of our community.

MR.: Now, again, all the different panel members are --

MR.: No, be a leader, Bill.

MR.: -- all the different panel members are coming at this from a different perspective. I'm very interested in the operators, but I'm most interested in what the operators are doing as a result of their contractual responsibilities and their responsibilities through the FAA regulatory scheme. And as I say, I assume all you operators are good human beings and are businesspeople. And what I'm trying to understand is what the playing field is out there, how level it is in terms of operational safety, aircraft, et cetera, and so you can help us in helping us understand both what that level playing field is -- your industry may be different from every other industry I'm talking to, but most people say give me a level playing field, tell me what the rules are, tell me the things I need to do and I'll perform them. And usually that way everybody is performing hopefully to the same level of safety and understand what the rules are. Here I'm having difficulty understanding what the rules are.

TERRY UNSWORTH: Okay, all right. Did you want to backtrack to any, such as the pilot training or maintenance to just cover that?

MR.: Well, why don't you proceed and then we'll come back through, if you don't mind.

TERRY UNSWORTH: No, no problem.

MR.: And I don't --

TERRY UNSWORTH: I think as far as the industry view, as with any industry, I think you'll find that some take a minimalist approach. You know, that's bound to happen

to some degree. I can't speak for any single operator, nor would I, but as I said, we tend to go way beyond requirements, whether it be FAA or Forest Service.

So before the season, we're responsible to make sure the flight crews are prepared and we have no later than 60 days prior, the aircraft no later than 30 days prior to the contract time, and the reason for that is they can be called on early and this last season we had an average time of calling early about 28 days average throughout the fleet.

And, of course, we prepare the maintenance crews. The Forest Service do their preseason inspection and the carding, the pilot carding, as it's called, and that's the topic we touched on earlier.

And one of the expectations, in fact, one of the requirements of the contract is that we are supposed to, if the crews don't fly for 15 days they have to do 20 minutes proficiency flight. Now, I'm a pilot as well and I have a serious concern about that, but one of the suggestions we have later here is to increase that time allowed in the contract for proficiency flights and also increase the regularity of those onto a weekly basis.

MR.: Terry, how often are their 15-day gaps between flying? Is that a once a summer occurrence or is that once a month that that happens?

TERRY UNSWORTH: It obviously varies from season to season tremendously, but as a guesstimate average I would say probably once every six weeks or something like that.

BILL BROADWELL: It also varies by where the air tanker is located, too. Some of them will sit and some of them will fly.

MR.: Twenty minutes is sort of taking of and landing, is that correct?

TERRY UNSWORTH: Well, exactly, yes.

BILL BROADWELL: That's right.

MR.: Not being a pilot, I want to be sure that that's about as long as it takes to fly from Atlanta to Chattanooga usually.

TERRY UNSWORTH: Right. And one of the suggestions we make on a go-forward basis is that included in that proficiency flight is ILS approach and into --

MR.: And that 20 minutes is in the contract?

TERRY UNSWORTH: Yes, a 20-minute requirement.

MR.: Twenty-minute requirement. Now, why is it such a ridiculous number? Because the Forest Service then has to pay you for that 20 minutes?

TERRY UNSWORTH: Yes.

MR.: And how do they pay you for that 20 minutes?

TERRY UNSWORTH: Well, it would be wrong for us to say that's why it's 20 minutes, but the Forest Service do pay us for 20 minutes, yeah. Now, we have chosen --

MR.: Is that an additional 20 minutes above what the -- how does the Forest Service pay you? I don't know that I understand the structure.

TERRY UNSWORTH: The tanker bases basically report the flight hours that we do. We get paid availability for being there on the contract and we then get paid flight hours and those are reported by the tanker bases to the admin folks at the Forest Service.

MR.: So you get a base fee for the availability --

TERRY UNSWORTH: Availability.

MR.: -- of the aircraft?

TERRY UNSWORTH: Yeah.

MR.: And then you get a per-hour charge?

TERRY UNSWORTH: Yeah.

MR.: And then you all are responsible for maintaining those records?

TERRY UNSWORTH: We keep our own records, absolutely, but the tanker bases are responsible for reporting the hours. We get notified by our crews of the hours as well, so we make sure that we're in synch with the tanker base reports. But the tanker bases send their reports to the admin folks at the Forest Service who then process it for payment.

MR.: Would you be flying any more than this 20 minutes if you weren't paid for it?

TERRY UNSWORTH: We do fly more than the 20 minutes. Twenty minutes, quite frankly, is ridiculous and in fairness to the Forest Service, in fairness to the Forest Service we have on occasions at certain bases requested additional time so that the pilots can do some instrument approaches and some good examples of that would be into Santa Barbara, which is so susceptible to fog and also San Bernardino, which is susceptible to the smog of the Los Angeles Basin. And so for those crews based there we've asked and we have received additional money to fly longer, but it's been a squeeze, it's been a real tight squeeze to get that.

To answer your question, if a manager of an aircraft, our captain, and this goes onto the next slide, came to one of my senior managers or myself and asked for an additional hour because he as the aircraft manager was concerned about crew resource management and wanted to get up there flying, then I would advocate that wholeheartedly.

MR.: Now, let me ask one other question on this preseason training. Are you paid for that?

TERRY UNSWORTH: Yes. Yeah. We are not paid for everything we do but we are paid the contractual minimum.

MR.: Is there an hourly minimum then they will pay you for, for preseason training?

TERRY UNSWORTH: We're paid for the ground school training. We're paid for the hours that we fly on the training to do the practice drops and so on.

MR.: I guess my question is, is there a limit, you can only fly 100 hours or how --

TERRY UNSWORTH: It's five hours, I believe. Five, I believe, five hours.

MR.: Per pilot?

TERRY UNSWORTH: Yes.

MR.: Okay.

MR.: (Off mike.)

TERRY UNSWORTH: Yeah, we bid it into the contract. It's included in the contract price. So we're expected to -- it's expected that it's in the contract price.

MR.: Is five hours adequate?

TERRY UNSWORTH: No.

MR.: How many hours should it be?

TERRY UNSWORTH: Well, I think as with any training it's not just, you know, simply hours, it's a matter of what is the training and that's why it goes back to this point about training with lead planes, training with ASMs, training in more of a battle situation would be invaluable. And if that's only for one hour it's probably worth about 20 hours of not doing that.

MR.: Okay, but right now basically the five hours is just dedicated to going out, dropping and coming back?

TERRY UNSWORTH: Yeah.

MR.: Okay.

TERRY UNSWORTH: And it would be also useful to train over typical terrain, and that's again a suggestion. We drop over the valley where it's pretty flat, but there are a lot of the actual operational time is spent in mountainous areas.

So the captain, as I said, we consider the captain to be the manager of the aircraft in all ways and therefore responsible for the points that you see there. But we have given the captain absolute responsibility, total and absolute responsibility to make the decisions if they don't think that the crew, they are -- if the captain believes that they're tired, even though they haven't met the requirement, then they will refuse to do the flight. If the captain believes that they should have an additional day off because they are required by the contract to do six days, if the captain believes they should have an additional day off, we have given the captain the right to say we're taking two days off. And that's okay, because we understand the conditions and the circumstances that they're flying in.

MR.: Terry, can you comment on is it a SAFECOM (ph) process that the Forest Service encourages helicopters I think and fixed wing and air tankers to fly off? It sounds like reports of incidents that are informative to the rest of the community.

TERRY UNSWORTH: I'm sorry, I don't understand your question quite.

MR.: Is that he name of the program, SAFECOM?

TERRY UNSWORTH: Yes.

MR.: Is there any incentive to participate in that program? Do your pilots participate?

TERRY UNSWORTH: They do participate, yes. There's no financial incentive to do that in any way, but they do because they're pilots.

MR.: Right. Is there any internal sort of well done -- I'm trying to think of the right terms here. You know, if particular crews do things that the company applauds, like take an extra day off or decide to not do something that they thought was on the side of safety, is there anything in addition to the SAFECOM program that is sort of programmatic within your organization, an attaboy, some kind of communication with the rest of the pilots? I'm trying to figure out communication among pilots that are decentralized for the most of the season, how well do they communicate with each other about --

TERRY UNSWORTH: Well, in the back of your handout you've got one of our newsletters, which goes to all the pilots, so they're kept in touch of what's happening. I try to get out to as many of the bases as possible. In fact, on the front cover there I was at the Shasta base recently with one of the crews --

(Audio break, Atlanta I, side A to side B)

MR.: Well, it's Larry Atkins' birthday.

TERRY UNSWORTH: Every little helps.

Anyway, so as far as the retardant delivery is concerned, it is a team effort. It's important that the ASM, the communications with the incident commander on the ground is clear, is good and clear. The bullet point here regarding initial attack and extended, the fixed wing, large fixed wing air tankers are magnificent in the initial attack and one of the problems we experience more and more is there seems to be some communication or some unnecessary bureaucracy in the command and control structure that allows us to do an initial attack promptly and therefore avoid some larger fires.

MR.: Excuse me. Would you expand on that a little bit, Terry?

TERRY UNSWORTH: Sure.

MR.: I'm not sure I understand exactly what the deficiencies might be in the C2.

TERRY UNSWORTH: We have had occasions where we've been in a prime position to perform an initial attack, but the local command and control structure has insisted that we wait until ground crews are on scene or an incident command is on scene. And we believe that if the large tankers were given more of a license to attack on site almost, as with other countries in the world, then we would perhaps, we would perhaps avoid some of the large campaign fires that we've seen and some of the unnecessary expenditure.

MR.: Do you know why they're making that decision?

TERRY UNSWORTH: I can't answer that definitely, and I would love to, because I haven't had the opportunity to study the command and control structures in the various regions, and I don't think anybody in Aero Union has quite frankly. It has been a frustration at times for the crews to be over a fire and not allowed to drop. It doesn't happen that often and I believe that certain regions are better than others or worse than others, whichever way you look at it.

MR.: We've been told that the command at the fire determining who drops what when is really a ground function.

TERRY UNSWORTH: Yes, absolutely.

MR.: That decision is made on the ground because the ground guys are in charge. And does there, in your opinion, maybe yours, Bill, need to be a modification of that to where certain situations command could be transferred to somebody in the air?

TERRY UNSWORTH: Bill I'm sure will have his own response to this and how close we'll be together I don't know on this, but I look at this first of all, whether you care to take this on face value, but I look at this first of all as a service to the community and lower down the scale from a business point of view. And we believe that our aircraft can be measured much more effectively and be proven to be much more cost effective by being allowed to do the initial attack on site where there is no danger to dropping near human beings or buildings and so on. And there are times when that could happen without the need for a ground commander to be there, even though they may be en route.

So rather than wait until it gets out of hand possibly, then -- and I have to say perhaps, and I have to say maybe, because I don't have any hard data to support this. We only on occasions is there frustration from some of the crews when they know they could have dropped, it was safe to drop, they did not need a lead plane. In fact, some of our folks are lead plane certified anyway, they've flown lead planes in the past, they did not lead a lead plane, there was no danger to anyone and they could have dropped.

MR.: They're all initial attack qualified? Is it that designation?

TERRY UNSWORTH: Yeah, sure.

MR.: Can you give us -- I know it's impossible and you said maybe and you're guessing, but is this 1 percent in your guess of fires, 15 percent, just can you get the order of magnitude?

TERRY UNSWORTH: Well, again I think the -- no, I'd be guessing and that would be unfair to you and ourselves, but just one can be a large fire ultimately. So from an acreage point of view I think it's a matter of looking at it from that point of view rather than saying how many incidents. But I'd be guessing and I don't want to do that.

MR.: You mentioned other countries have a different structure?

TERRY UNSWORTH: Yeah, other countries actually have aircraft patrolling and they don't wait for a ground commander to say drop. If they see a fire, they drop.

EARL MCKINNEY: Terry, while you're on that subject, is there -- we're looking at ways to --

MR.: Earl, I apologize. Can you give us -- do you have any other countries you could send us information on as an example?

TERRY UNSWORTH: Sure, absolutely.

MR.: Thank you. I'm sorry.

EARL MCKINNEY: Where in the system could that data be collected on when a dispatcher has sent a heavier tanker toward an initial attack? Where can we capture that data in the system so we know how often they're not permitted to drop and had to wait longer? Is there some way that could be set up so we could make suggestions about maybe at least collecting that data?

TERRY UNSWORTH: I would hope the Forest Service have some kind of data on that.

BILL BROADWELL: The dispatch centers (inaudible).

TERRY UNSWORTH: The dispatch centers.

BILL BROADWELL: But I don't know if they record it to the degree that it would identify what Terry's talking about.

TERRY UNSWORTH: Right.

EARL MCKINNEY: I'm just trying to think through how you would fit a delay into that system. Who would know that the tanker was delayed once they got to the fire, other than just the tanker themselves?

BILL BROADWELL: The tanker themselves and the dispatch (inaudible).

EARL MCKINNEY: Does it get back to dispatch in all cases that we've had to hold out here for two hours waiting for permission to drop or --

TERRY UNSWORTH: Yes, it should get back to dispatch and therefore dispatch should be aware of that situation, yes.

BILL BROADWELL: This kind of stuff, to get it accurately, has got to be reported at the time. To try to recover it afterwards is very difficult and almost (inaudible) thing like that, to tell you the truth.

MR.: Does the dispatch keep a log or anything like that of -- I mean, I'm trying to imagine in my mind here, the tanker pilot gets out there, says I've got the fire in sight, there's nobody on the ground or I can't reach anybody on the ground on such and such a frequency. Is he only talking to dispatch at that time? And if so, wouldn't dispatch have that log or something?

TERRY UNSWORTH: They have frequencies to local dispatch and also to the federal system where they can talk to Boise and so on.

MR.: The command center.

TERRY UNSWORTH: Yeah.

BILL BROADWELL: They have frequencies for the incident commander or the ASM module (inaudible).

MR.: So you can have a situation with tankers on site, ASM is overhead, can't drop until the ground commander is --

TERRY UNSWORTH: No, I don't think -- that may or may not be the case but that's not what I was referring to. It's where we've had a tanker out there initially on its own and we've been delayed from dropping, for whatever reason the ground incident commander has taken that reason, I don't know.

EARL MCKINNEY: Sorry if we're regressing back to not knowing how this actually occurs. In a good situation where you're allowed to drop, how does the system find out your status? You're sent out, dispatch says there's a fire, here's the coordinates and you're cleared to drop or something like that and they drop. How does the information get back to dispatch that you dropped 3,000 gallons?

TERRY UNSWORTH: Well, they know they've loaded and the incident commander tells us where to drop it or the ASM and lead plane guides us in and we drop and we empty a tank and then we come back and fill up again.

EARL MCKINNEY: Well, Terry, I was trying to think through the times when you're on initial attack and there's no lead plane, there's no incident commander on the ground yet. How does the data get into the system that you dropped 2,500 gallons or 1,500 gallons?

TERRY UNSWORTH: Three thousand. The pilot would report it back.

EARL MCKINNEY: On the frequency to dispatch?

TERRY UNSWORTH: Yes, sure.

EARL MCKINNEY: And every time you drop that radio call is required?

TERRY UNSWORTH: I don't think there is a definite requirement every time we drop for that radio call to be made. I think it's going to depend on the circumstances. If there's multiple aircraft being led into the pattern, then I don't think there's any need to do that because the ASM can see what's going on. But in the case of an aircraft being out there on its own doing an initial drop then they would report back that they've done the drop.

EARL MCKINNEY: And, Bill, maybe you could help. So the ASM would be the one that was keeping track of the score, how many gallons got -- somehow they know the number of gallons dropped.

BILL BROADWELL: The tanker bases keep close watch on how many gallons of retardant are dispatched out of that tanker base. It's a matter of pride with them I guess as to how much they've contributed to the overall wildland firefighting effort.

EARL MCKINNEY: So it's not kept at the fire, it's kept at the --

BILL BROADWELL: Not on the fire; they don't have time for that.

EARL MCKINNEY: Okay.

BILL BROADWELL: That's back at the tanker base, because they know what's been dispatched. So I suspect they aggregate all this at the end of the year from all the tanker bases and that's how much retardant is dropped. But as far as how much on each one, they could probably figure that out. I don't know if they do or not.

TERRY UNSWORTH: There are also debrief sessions at the end of day at those bases. Sometimes if it's been a hectic day those are left until early the next morning. But there are debrief sessions on that.

MR.: Terry, I'm a huge proponent of very rapid initial attack, however we can go about doing that.

TERRY UNSWORTH: Right.

MR.: And I've studied it quite a bit trying to figure out how we can move it effectively, get the resources there as quickly as we can after whatever form of (invitation ?) comes about. I think maybe the state of Nebraska has some sort of arrangements with single-engine air tanker groups there that do somewhat the nature of what you're talking about here. As far as large air tankers go, how would you find out that there's a fire that you'd like to drop on without all this connection that we're talking about here? You're not loaded and just circling around up there waiting for a fire. You're never -- you don't ever take off until you're actually dispatched?

TERRY UNSWORTH: Correct.

MR.: Correct. Okay.

TERRY UNSWORTH: But we may be diverted en route and be sent somewhere else.

MR.: Oh, okay. You'd be diverted somewhere else but then not allowed to drop. Is that --

TERRY UNSWORTH: Well, no, no. We may be diverted to another base for whatever reason and at times our pilots are bound to see fires en route. So I think it's those occasions where it's not necessarily where the tanker is dispatched and then it's not allowed to drop. It's where they see a need and put the request through and it's not given. And as I say it doesn't happen that often but it still doesn't help the initial attack situation.

Okay, Mr. Chairman?

So, and, of course, there is a fire traffic area that any pilots operating in that area are supposed to comply with the approach and the height of approach and the letdown over the area and the exit from that fire traffic area. And that was reinforced again last year in lieu of the accident with the two CDF planes in California. So that was reinforced again. It's not a new thing; it was reinforced. And, of course, common sense prevails.

The crew duty contractually they are required to be available six days per week, but as I mentioned to you earlier, if the captain deems it necessary to extend the days off then we do that.

And usually that's done in cooperation with the base, with the tanker base and with the Forest Service.

MR.: Are your crews just paid for hours they fly?

TERRY UNSWORTH: No. No. They're employed. They're employed for being with us, sure.

MR.: They're employees.

TERRY UNSWORTH: And they're allowed a maximum of five hours overtime. There's an overtime missing off the bullet point on that first sentence.

EARL MCKINNEY: Can I interrupt though and ask you, I guess I was under the impression that pilots also were paid for particular number of hours flown during the fire season. Maybe that's not true of your company, but --

TERRY UNSWORTH: They get flight pay, which is part of their employment, but they're not incentivized to fly hours. They get fly pay just like most pilots in various operations.

And as you see, their hours are limited to eight per day and so on. I don't need to read that. I'm sure you're all familiar with that.

Suggestions so far?

MR.: Do you think these rules on crew data and readiness are adequate, provide enough rest for the crews or not?

TERRY UNSWORTH: Generally yes. Generally yes. There are exceptional times when it's really busy and that's when the captain can suggest that they don't fly another day. But generally yes.

BILL BROADWELL: The Forest Service will jump in there as well on their side of the picture and if they feel that the crews are being stretched they will extend and put an extra day of rest in there and they did that this year. So it works on both sides of the fence.

EARL MCKINNEY: How do you count that time though? I know in the military it's typically you need to be leaving the base such that you can be back here 12 hours later or something like that, like generally it's 12 hours except combat or some things like that. How do you count it?

TERRY UNSWORTH: Well, they're required 10 hours uninterrupted prior to the next duty day.

EARL MCKINNEY: I understand. How do you count that? When does that 10 hours start?

TERRY UNSWORTH: Well, bear in mind that there's no flying from dusk to dawn, and the base will actually sign off the crew and know what time they left and when they come back in and so on.

EARL MCKINNEY: Okay, so there's actually sign out, sign in times or something like that?

TERRY UNSWORTH: Yes.

EARL MCKINNEY: Thanks.

BILL BROADWELL: There's a policy out and I wish I had brought it with me that (inaudible) discuss when that time starts and stops. It's not when the engines shut down, it's when the crew is done and in place at the rest (inaudible).

MR.: When pilots are off for the one day or two days, does that take that plane out of service?

TERRY UNSWORTH: Yes.

MR.: Okay. You don't have fill-ins that --

TERRY UNSWORTH: No, and that's, of course, one of the times that we can do any necessary maintenance or inspection work and so on. And what happens is the captain of the aircraft on that point hands over responsibility of the aircraft to the maintenance guy, the crew chief who's there from Aero Union while they're working on the aircraft and then they hand it back at the end of that time.

The suggestions we have, and we touched on some of these, contractually allow additional training, including instrument approaches, flying over typical terrain, additional water drops over typical terrain and flying with lead planes and ASMs.

We don't get any feedback from a performance point of view. Contractually we are supposed to but it would be really helpful to receive some formal feedback as regards effectiveness and performance. The only thing we get is we proactively send out a survey to all the tanker bases to survey their views as to our operation, and whether the aircraft was based there or not, because the chances are they will have at some point in the season used that tanker base.

But unfortunately we don't get any performance feedback, and it would also be a good idea to somehow measure the effectiveness of initial attack and the effectiveness of extended attack on fires.

MR.: Do you all operate in any other countries?

TERRY UNSWORTH: No. But we get requests from other countries. Every year Australia contacts us it seems. We had a request from Spain and one or two other countries in Europe.

And two things: First of all, we don't have the aircraft to spare to send to those countries and secondly, they're on contract to the Forest Service for basically one year plus two, so three years where those aircraft almost belong to the Forest Service.

MR.: Do you think you could provide the panel with a copy of one of those surveys?

TERRY UNSWORTH: Oh, absolutely, yeah. In fact, I intended to put one in the packet.

MR.: From a business standpoint, would you like to be able to go overseas if there weren't certain restrictions placed on you as a part of the Forest Service?

TERRY UNSWORTH: Absolutely, yes. Absolutely. With the correct platforms. One of the concerns we had about going to Australia was that is the aircraft fully equipped, we'd have to put survival gear in and all the rest of it in one of the P-3s and therefore it was going to be four days before we could get there. I think ideally if you're going to provide an urgent need internationally then it has to be an aircraft that can get there the next day. And we're looking at additional platforms to do that incidentally.

EARL MCKINNEY: Terry, can you return to effectiveness for a moment? I think it's an interesting idea. Obviously, you have the number of gallons of retardant you drop. You keep track of those sorts of things. That's not what you mean. You mean --

TERRY UNSWORTH: No, how effective were we on the fire. And we're trying to develop a formula. There was a formula around some time ago, which was incredibly complicated, and I did have sight of it and was totally nauseated, so what we're trying to do is develop a fairly simple formula to at the very least measure our own effectiveness on the fire, if we can do that, in lieu of something coming from the authorities.

EARL MCKINNEY: I'm just trying to think through. There must be records kept on number of fires extinguished in the state of Utah during a period of time and you don't have that by how many sorties you flew against that?

TERRY UNSWORTH: No, unfortunately not. Well, we can get that information, sure, fairly easy, but our own effectiveness we have no measure on that. Maybe the Forest Service have some kind of measure on total tanker effectiveness, because there may be a number of companies working that fire at any one time.

EARL MCKINNEY: But you made the good point or Bill made the good point that you can't enter data in the middle of a fire, that you don't want the ASM up there typing something in the laptop about we just dropped 2,500 gallons on this coordinate. Do you have ideas about how to measure effectiveness?

TERRY UNSWORTH: Why not? They could -- I mean, if that person's not flying and the ASM maybe needs to adapt to different roles, whether it be even infrared related and seeking out hot spots and all that, but I don't know.

BILL BROADWELL: Can I just (spend ?) a moment on this? This is an issue that the Forest Service is having to adapt. This is an issue the Forest Service is wrestling with now because they're going to be required or are being required by OMB in order to be able to justify their large fire budgets. And I don't think that there -- as a matter of fact, there is not a measure of effectiveness of aerial firefighting and putting out wildland fires other than they feel that that capability is essential to doing this job.

To try to come up with one, though, is going to be extremely complicated because it involves so many things. Number one, did the pilot put the retardant in the point from point A to point B where he or she was supposed to? Was it dropped properly as far as the amount and thickness of the retardant? Was there any burn through afterward? Because if there was, then that's part of the overall effectiveness that it didn't stop the fire; those kinds of things. And that's one heck of a data collection requirement that I'd find it very difficult for the Forest Service to come up with.

MR.: Do you all use any video?

TERRY UNSWORTH: No. Aero Union doesn't, but I can't speak for any other operators or the Forest Service.

EARL MCKINNEY: If you just concentrated on initial attack, wouldn't that be a little bit easier to come up with effectiveness measures? I could see the large fire, it's almost impossible to quantify your benefit when you're 1/10th of the fight but if you're putting out 20, 22 fires that you were directed against in the first hour?

TERRY UNSWORTH: I suppose it goes back to if you put a fire out on initial attack what have you just saved? Have you saved a one acre plot burning or have you saved 22,000 acres from burning? That's one of the issues. So it is difficult. It's not an easy thing to get an effective picture.

EARL MCKINNEY: Would you agree that that's an easier game to make a valid effectiveness measure out of initial attack rather than the big messy --

TERRY UNSWORTH: Yes.

BILL BROADWELL: But there are some figures -- I don't know how accurate they are -- that the Forest Service says that the initial attack account is, in fact, 97, 98 percent effective throughout the year so the other 2 percent are what you read about in the papers, the large fires. So I don't know where they get those numbers but they are apparently available to make that point.

TERRY UNSWORTH: To continue, we have touched on the base points as well. Air tanker school, did I skip -- oh, yeah, the proficiency flight, we mentioned that earlier. We're suggesting 90 minutes for every week --

MR.: Well, let me ask you on this. You use fixed wing aircraft more aggressively on initial attack.

TERRY UNSWORTH: And that's the topic we're discussing.

MR.: We might as well get things exciting here. Why wouldn't you add helicopters into that? Would you also say they should be used more aggressively for initial attack?

TERRY UNSWORTH: If the helicopter is the more local resource and the most convenient to do that and will get the quicker results, absolutely.

MR.: (Off mike.)

MR.: Just basically whatever type of aircraft initial attack the command structure should be more flexible in permitting those individuals to make decisions in the air to drop is what you're saying?

TERRY UNSWORTH: Yeah.

Air tanker school, Aero Union, as I mentioned earlier, is willing to operate that and we've looked seriously into offering it to the industry anyway. We spoke about NAFA's role in the industry and additional training, maybe a more formal course on crew resource management right through to transition from reciprocating engines to turbine engine operations.

The contract is one year with two additional one-year options. One of the suggestions made later is that's not long enough. It ideally should be extended from a business planning point of view and in addition to that the actual contract takes 12 months to come to fruition and the first four months of that require an extensive amount of effort on our behalf to put all the data together to put the bid in and then after a 12-month period we find out whether we've been successful or not.

The proposal is in two parts, both technical related to the aircraft and also business related to costs and price.

Throughout the contract three years on an annual basis there's some adjustments made if necessary under those three categories and apart from fuel, which is reviewed quarterly by survey and if it changes more than $0.10 then we are adjusted accordingly.

MR.: Do you keep fuel records? Do you pay for fuel?

TERRY UNSWORTH: Yes, absolutely. Yes.

MR.: So you keep --

TERRY UNSWORTH: Extensive fuel records.

MR.: Is there any requirement that you have fuel records?

TERRY UNSWORTH: All records. The contract requires us to keep all records.

MR.: And exactly where in the contract is that? If we don't get it today, I'd like to --

TERRY UNSWORTH: Sure.

MR.: -- be interested in knowing where. I've got one of these here tanker contracts and I'd like to know exactly where you're supposed to keep your fuel records.

TERRY UNSWORTH: Okay.

EARL MCKINNEY: Do you keep those records for internal purposes?

TERRY UNSWORTH: As well, yes.

EARL MCKINNEY: And you're paid by the gallon used in the contract or you're paid a given amount for the contract, period, and --

TERRY UNSWORTH: But we bid on availability rates and flight hours.

MR.: But I mean if the Forest Service came to you, would -- are you paid any additional for fuel?

TERRY UNSWORTH: No, it's built into the bid.

MR.: Built into the bid.

TERRY UNSWORTH: For flight hours.

MR.: so the fuel records are kept only for your internal purpose or does the Forest Service have a right to the access to those records?

TERRY UNSWORTH: We keep them for obviously internal reasons. My understanding is that the Forest Service have the right to look at them at any time as well. And we don't mind it if they do anyway.

MR.: Well, my question is if that's in the contract or that's just sort of the way it's always been done?

BILL BROADWELL: The issue of the flight rate is based on proposal time on a certain dollar amount per gallon of jet fuel or air aviation AV gas, and then that's reviewed quarterly to see if it's gone up or down and if it exceeds a certain amount then there is a certain percentage that's added back in. The flight rate is adjusted to allow for that fuel. But the deals that the companies have are directly with the fuel providers and whatever deals they have is their own business. In other words, I guess what I'm trying to say is that it doesn't make any difference to the Forest Service I guess how much Aero Union burns. It's out of their pocket because the only get a certain amount for flight rate. So that's my point on that thing.

TERRY UNSWORTH: And like I say, if they wanted to look at those we have no problem with that.

I mentioned the 30-day early call and the 45-day post contract requirement that they can keep the aircraft back after contract for up to 45 days and if they want it longer then, of course, we do that.

One other thing that's interesting though is on the post contract 45-day time we get a lot less for being there. The availability rate goes down dramatically. And the reasoning behind that is because all the costs should have been built into the contract in

any case. So being there for additional time is therefore seen as justifying less pay for the operator for availability, not for flight.

Availability is guaranteed throughout the contract period. Flight hours are not guaranteed for obvious reasons.

There was a study done, I believe in 1996 the study was done originally. It's been reviewed since and I'm sure you've heard of the NATS 1 and NATS 2. Now it's one dealt primarily with the tanker bases. Now it's too primarily with the aircraft themselves. And the recommendation at the end of that study was that the fleet should be made up of the following aircraft: 20 P-3s, 10 C-130Bs and 11 C-130Es.

Unfortunately, those aircraft are not available and we have an ongoing struggle to try and acquire additional P-3s. There are 34 type A P-3s parked in the desert and despite repeated requests, letters from senators and other pressure we don't seem to get the aircraft released.

EARL MCKINNEY: What's your assessment as to why?

TERRY UNSWORTH: Having spoken to the senior military officers responsible for putting these into the auction process and so on, I think there's so much pressure on them to look at other options for aircraft, whether it be international sales or extracting out of the desert and going into other countries or whether it be being used in a role that they were retired from but being put back into that role, there's so much uncertainty about those things that that doesn't help.

Also I think there's a reluctance to let aircraft go because some of the parts may be needed by their own operations as well.

So I'm sure there are many reasons including those as to why. We've never had a clear definitive answer on that. But this is extremely frustrating. The last aircraft we managed to -- the last P-3 we managed to purchase was from an A&P school in Texas and as you'll see on the next page we purchased that at just under half a million. We had to do some considerable work to it to ferry fly it back to Chico and you see the total cost there of just under $2.4 million. That was tanker 20. That was the last one we did last year.

So in the suggestions we're suggesting a longer contract to enable us to plan much better, to enable us to even consider leasing modern aircraft and tanking them, of course, revise the bid process to abbreviate it and make it a little bit less of a trauma, take heavy workload, introduce an insurance index as part of that because as a result of 9/11, as I'm sure you're all aware, the insurance costs escalated dramatically and so there should be something in the contract that allows us to, just like fuel in a way, allows us to be -- yes, sir?

MR.: Excuse me, Terry. Could you give us a wag on what the insurance costs have gone up? I know what it is throughout the industry for all kinds of things on the order of 25 percent or more.

TERRY UNSWORTH: Right. That basically went to a million dollars overnight.

MR.: Went to a million?

TERRY UNSWORTH: Up by a million dollars overnight effectively.

MR.: Are there any aircraft equivalent to the P-3 that are original manufacturer aircraft that you could purchase?

TERRY UNSWORTH: We don't believe so of that genre of aircraft, no.

MR.: Are there any aircraft?

TERRY UNSWORTH: Oh yes.

MR.: What are they and what is the range of their cost? Do you know?

TERRY UNSWORTH: Well, we're looking at jet platforms at the moment and from the commercial world, which would not be restricted by government military issues and there are plenty of serviceable aircraft.

MR.: I mean, any that have been designed for the purpose of -- most of the aircraft you're using now were not designed for the purpose they're performing.

TERRY UNSWORTH: Right, okay.

MR.: They were designed for a military function. Now, the best I can tell from our conversations at the FAA and the Forest Service there's really no look at those aircraft as to whether they're capable of performing over a long period of time the mission that they're being tasked with. There are some aircraft that are designed for the purpose of aerial drops.

TERRY UNSWORTH: Sure.

MR.: And my question is obviously have you looked at any aircraft in that area and what is the relative cost of that aircraft versus a P-3 or a surplus military aircraft?

TERRY UNSWORTH: To buy --

MR.: Assuming that the government is attempting to save money in terms of using the military surplus aircraft.

TERRY UNSWORTH: Right. To purchase a similar sized type 1 category fire tanker we'd be looking at approximately $20 million as against a $2 million total for purchase and conversion.

MR.: And can you give me the model of that aircraft?

TERRY UNSWORTH: There are some purpose built Russian aircraft. The latest one that's creating some interest is the B-200, which is a jet platform, amphibian, that can operate both from a tanker base using retardant or can scoop in the lake and so on.

MR.: Now, who does your conversions? I notice that's the big cost of this.

TERRY UNSWORTH: We do our own.

MR.: So you do the conversions.

TERRY UNSWORTH: Yes, sir.

MR.: So 1.785 million is --

TERRY UNSWORTH: Internal.

MR.: -- the cost you put on a conversion.

TERRY UNSWORTH: Yes.

So going back to suggestions, performance feedback, we touched on help in releasing the P-3s. There's the Wildland Fire Suppression Act of 1996, which encouraged the Department of Defense to release turbines and that's not been fulfilled. And also we would look for support for new platform development and operations, different aircraft, whether it be a 727 or a 747 or a DC-10, whatever it may be. And I mention those because we do have an interest in those as well.

Maintenance wise, as I touched on earlier, we have the FAA inspection program with the diamond and silver awards. We are NAVAIR approved. We do follow the NAVAIR approved maintenance program, which includes the major work at eight-year intervals. We have two DERs on staff. We have a current library that's extensive. We do have NDI capability of inspection and, of course, of utmost importance. And we believe we go above and beyond the NAVAIR maintenance program in the diligence of that.

MR.: These are all older aircraft. As you know, in the commercial world there's a concern about aging aircraft and there's been quite a bit of investment that's been made in the aging aircraft programs. What is it you do to ensure that with the stresses that your older aircraft are placed under that they're still structurally sound? What type of testing regime program, ultrasonic, et cetera, what do you do?

TERRY UNSWORTH: We do ultrasound eddy current tests. We actually physically inspect inside the wings, inside the appropriate points in the aircraft, attach points for the tanks and everything else.

MR.: Is that a requirement?

TERRY UNSWORTH: It's not a Forest Service requirement as such. It is accepted as part of the NAVAIR maintenance program, but we go beyond that. We go above and beyond that because of the use of the aircraft, because of the conditions the aircraft are flying in, quite often turbulent conditions.

And as you see there, we know we've replaced wing planks, (spar caps ?) and so on. In fact, we've just replaced a (spar cap ?) on one of our P-3s.

The emergency maintenance coordinator, 24-hour support for the crews, is responsible for dispatching maintenance and also spares and replenishment of spares. Our availability rate I'm very proud to say has been running at 99.4 percent. This last season we've still maintained an availability of 98 and above even though we've been under a tremendous workload, so to speak, as you know.

EARL MCKINNEY: What accounts for the time that it's down? Is it mostly mechanical or human?

TERRY UNSWORTH: Well, additional inspection time, additional ongoing, you know, routine maintenance time because of flight hours and we have a policy of bringing the aircraft back to the base for certain work. Even we're suggesting some changes to that as well, whereas another operator may choose to do their repair on the base and therefore we lose some availability because we've taken it offline, but there are certain things that we believe are more economical to do back at base overall.

The suggestions include, as I mentioned earlier, review the adequacy of the inspections that are done preseason by the Forest Service. We are seriously lacking facilities at the bases to do inspection and maintenance work. We have to provide our own floodlighting. We have to provide our own generators. We have to even provide our own water in many cases. There are day off spots allocated to park the aircraft but unfortunately there's not the utilities there.

We believe that the norm should be for ultrasound, NDI throughout the industry, and that is something that has to be verified by QA. We do that as a norm and not only is the equipment validated and verified by QA but the actual process is as well.

MR.: Terry?

TERRY UNSWORTH: Yes, sir.

MR.: You're no doubt aware that there's considerable upgrades on tanker bases.

TERRY UNSWORTH: Yes, as a result of NATS 1, yes.

MR.: Is there that process and once that's done is that going to alleviate some of the problems you're talking about?

TERRY UNSWORTH: No, the ones that -- no.

MR.: Still not.

TERRY UNSWORTH: No. The ones that have been updated haven't got the facilities.

BILL BROADWELL: I think that probably includes the structural facilities for the crews to be where they would stay and wait in ready alert status, as well as the tanker, the retardant loading places where they would load the retardant and the ramp areas and all that kind of stuff. That's where they would be upgraded, but as far the other equipment I don't think it includes that.

TERRY UNSWORTH: We do recommend, so suggest that regardless of what the aircraft or the FAA may require, a structural inspection every hundred hours on the aircraft and we actually do that.

MR.: What do you mean by structural? Visual?

TERRY UNSWORTH: No. If necessary, yes, but in addition to that we're recommending that there's an NDI done in the pertinent areas.

MR.: Now, would that be done at the tanker base or back at your home base?

TERRY UNSWORTH: Well, that's another point, because we're recommending that in our case we would prefer the Forest Service to allow us to fly it back to base for hundred-hour inspections. It can be done at the tanker base, yes.

MR.: Hundred hour, not hundred inspections.

TERRY UNSWORTH: Yes. Forgive me there, yes. Well spotted.

MR.: And how often do you experience severe turbulence and how would you know you have severe turbulence since you have no recorder on the aircraft? How do you know you're outside the envelope? Is that the pilot/copilot come back and say we're in severe turbulence?

TERRY UNSWORTH: The pilot and copilot would report it for the sake of other people in the flight area, other pilots and other crews. They report to us on a daily basis

and they tell us if they've experienced that. They know they have procedures of what to check if they've experienced severe turbulence and they have that documented.

MR.: For the layman, can you tell me, I'm sure most pilots would know what severe turbulence is, but most of us on a Delta flight a bump is severe turbulence. What is the definition of severe turbulence? Since you're going to be paid, assuming that the Forest Service -- you put in your contract that the Forest Service is going to pay you for severe turbulence and OMB is going to say, "Well, now, you know, if you're going to pay them to fly the plane back to Chico and back out to wherever it is, how are we going to be sure this isn't abused." So what is severe turbulence?

TERRY UNSWORTH: I think that would have to be measured on a G scale from a cockpit recorder to the --

MR.: A recorder?

TERRY UNSWORTH: Yeah, and aircraft typically, many aircraft are typically equipped with at the very least a G meter, but one could do more than that from a data acquisition point.

MR.: Are your aircraft equipped with that now?

TERRY UNSWORTH: Yes.

MR.: And does that provide a record?

TERRY UNSWORTH: Well, it shows the last extreme, if you like, yeah. At any one time you'd see the last extreme. Do you understand what I mean by that?

MR.: Would that then be a record once it landed that this had occurred or not?

TERRY UNSWORTH: Could it be -- did you say could it be?

MR.: Or is it now?

TERRY UNSWORTH: No, it's not a requirement, no.

MR.: Okay.

TERRY UNSWORTH: And we've put a note on here, not to land loaded with retardant on a regular basis. Some regions are again better or worse than others, whichever way you look at it, but if the crew are called off the fire before dropping, then in many regions they allow the pilot, the crew to drop the retardant in a safe place so they are not putting any undue stress on the aircraft coming back heavy. We are just suggesting that that is the norm, okay, that is the mandate.

EARL MCKINNEY: Terry, we heard about that from a tanker pilot. How frequently would you estimate they come back and land heavy weight? For one tanker maybe once a year, for one tanker maybe ten times a year they land heavy?

TERRY UNSWORTH: On average it's probably twice a year per tanker. On average. Some never experience it because they're in a certain region.

And lastly, as I mentioned to you earlier, we do have, one of the other divisions has a three-part alliance -- fire, fuel and sensor. The fire products were involved, and this is pertinent to what we're discussing here because the fire products we're involved in, the AFFS composite tank, the 4,000-gallon tank that is being developed for the Forest Service to be used by the Air National Guard to replace their MAFFS unit, which you may or may not have heard of, the Modular Airborne Firefighting System. And this, of course, is exciting to us from a product development point of view --

(Audio break, Atlanta I to Atlanta II)

TERRY UNSWORTH: -- (In progress) -- direct for Sikorsky now and we're also considering installing, developing and installing tanks inside CH-47 helicopters, Chinooks, for the European theater. And we are looking at the feasibility and all the aspects that go with that for tanking wide bodied jets as well as 727 and those are for not only firefighting roles but potentially other roles.

MR.: When you say "we" --

TERRY UNSWORTH: Aero Union.

MR.: This is just your company, not the whole industry.

TERRY UNSWORTH: No.

MR.: Okay.

MR.: What portion of your business is the flying and what portion of it's the --

TERRY UNSWORTH: The rest of it.

MR.: The rest of it.

TERRY UNSWORTH: Forty-five percent is the flying, the operation, the air tanker operation in revenue terms. We do in-flight refueling. We do the Lockheed flight tank for the C-130, which is marketed by Lockheed, which is a range extension or in-flight refueling tank. We do in-flight refueling for 707s for Brazil and Saudi Arabia, for the pods, should I say. And we have the latest surveillance sensor equipment that replaces the paratroop door on the C-130, which is the ATACs equipment, basically a

telescoping arm that extends below the fuselage and allows the sensor pod, the infrared sensor pod to do a 360-degree sweep instead of a 180-degree sweep.

MR.: I think we have other questions but I think Al's saying we ought to take a break and then --

AL HYDE: We can take a break, and be considerate with our time, all right? Let's take a 15 minute break and see where we are.

(Break.)

AL HYDE: Terry, thank you very much for your time with the panel and let's turn it over to Bill.

MR.: Well, let's see if Terry -- does Terry have anything you want to say before you finish?

TERRY UNSWORTH: Yeah, just thank you very much indeed, yes.

MR.: I have lots more questions but I'll try to figure out how I can either get with you --

TERRY UNSWORTH: Right. And what I was going to say was that if you do have any further questions at all, if we don't get a chance to cover them today, then by all means you've got my e-mail address, my telephone number there. If any of you want to call, then please feel free to do so.

MR.: Could you possibly give us, if you feel comfortable in writing something as to why you think that these aircraft you fly are safe to perform the mission, even though they weren't designed for this mission and no one has -- they do not have an airworthiness certificate for the mission they're performing?

TERRY UNSWORTH: Okay, yeah. And I also owe you the survey and other countries initial attack also.

MR.: Anything you want to give us some more reading is the better.

TERRY UNSWORTH: Okay, good.

MR.: It's exciting to read.

TERRY UNSWORTH: Right. Thank you and I look forward to seeing you, hopefully all of you on the 25th of October or whatever date we decide. Thank you.

MR.: Now, is it the 25th we're going there? That's what I brought my calendar to be. That's a Friday?

MR.: We have the Friday and it will be --

MR.: Well, we were in Sacramento, then --

MR.: We have a meeting with region five -- I'm sorry. We have a meeting with the Pacific Southwest region in CDF that morning of the 25th in Sacramento (inaudible), but you're done at noon.

MR.: So then we could go?

MR.: Up to Chico I mean.

MR.: No, I can do that.

TERRY UNSWORTH: Okay, good. Good.

MR.: I can do that. I just got to get a redeye to get back for the Tennessee-Alabama game and I just want to be sure I can do that.

TERRY UNSWORTH: Thank you. Thanks again.

MR.: All right, Bill, please.

BILL BROADWELL: First of all, before I get started on the statement that I had written up, which Al has a copy of, a question was asked about what we should do about who's in charge of fires and my view is that I think that remains with the incident commander. I had frankly not heard about the difficulties with initial attack in the past, this past year, but the guy on the ground has got to be the one -- they're the ones that put the fire out. They've got to be the ones to be in charge, in my view. But the idea of holding back on initial attack is contrary to the purpose of initial attack obviously is number one we have initial attack qualified pilots that allow them to do that without a lead plane and people telling them to do that. They're qualified. It's a step above being a captain.

Number two is that we carry a long-term retardant. The purpose of long-term retardant is to be able to put something on the ground that will last a long time. You don't have to have ground people there to capitalize on that as you would with water and water foam.

So that whole thing doesn't make any sense and it really needs to be investigated further, but my view is that somebody's got to be in charge and that ought to be the incident commander.

The same way in the military, the guy that wins the war is the guy with the bayonet at the throat of his enemy. I think it's the same principle here. The guy that wins the war are the ground people and we're their support.

Okay, as I told you before, I've been the executive director since March of 1992. My comments today are going to be my own observations based on this experience and will not reflect those of the association, because we haven't had a chance to meet yet. We're meeting on the 8th and 10th of October for the purpose of crafting a paper for the chief of the Forest Service that details the industry plans for ensuring continued and sustained safe and effective air tanker operations into the future. And I'll provide you a copy of that input to the chief and we expect to have that paper out here in about the third week in October.

After I was hired as the executive director, and this is way back when, it soon became clear to me there was no federal plan for guiding --

MR.: Bill?

BILL BROADWELL: Yes, sir.

MR.: You may have done this or are going to do this, but could you tell us, and it's part of your presentation, something about the Aerial Firefighting Industry Association, who are the members, what the annual budget of the association is, what the mission of the association is and a little about who will attend the October 8th to 10th meeting?

BILL BROADWELL: Okay. The association itself consists of nine large air tanker companies, eight of which have federal contracts. The only other company that has a federal contract with the Forest Service is the Mindan (?) Air Corporation and we're hoping they'll rejoin the association here this December. We also have two single-engine air tanker companies and I'll provide Al a directory. I could have brought one of those with me today and a mission statement as well. I'll get all that stuff. It's in our Web site by the way that's on there.

MR.: Which is?

BILL BROADWELL: On the card.

MR.: Oh, okay, on the card.

BILL BROADWELL: I take that back. That's not. The Web site is -- I'm sorry, the Web site is www.afia.com and that has all -- but I'll make sure that you get a copy of that. I'm sorry.

We have two single-engine air companies, two heavy lift helicopter companies and five sustaining members and perhaps a sixth that support the goals of the

organization, which is basically to foster the welfare of the industry and also to make improvements in safety and operational effectiveness as a group.

So I basically represent all but three of the large air tanker contracts that are let. Does that answer the questions?

Oh, the meeting, of course, in October will be a meeting of all the members that show up and our intention there is to get down to, and the reasons being is because there's a change that's necessary.

Our budget, by the way, for this job is about $65,000 a year so basically it's not a full time responsibility for me. I have other work that I do for the companies that I support as a part-time consultant, largely with the Department of Defense, as you'd probably guess.

Okay, I had indicated when I first got into the job that there was no federal plan for guiding large air tanker sustaining or modernization. The conversion to turbines had started through the museum exchange program, but that was consequently stopped when it was deemed to be an inappropriate use of that program.

At the same time, the Forest Service were already in discussions with unknown companies about an A-10 project, the bottom line being though that what was happening is that the same people that were cut out of both the transition to turbine airplanes during the museum exchange program were being cut out of this A-10 program.

So in the spring of 1992 the association sent a letter to the chief of the Forest Service requesting action to produce a planning document, and I have a copy of that letter with Al. The national air tanker study, the NATS phases 1 and 2 that were published in 1995 and '96 answered that request. The studies validated the need for 41 large air tanker contracts, 35 of which were for initial attack and six were for large fire suppression based upon the last ten years of wildland fires and how they were used.

They evaluated a wide spectrum of commercial and military turbine powered aircraft, capable of carrying greater than a thousand gallons of retardant and determined the most cost-effective option for updating and sustaining the large air tanker industry was to transition to an all-turbine powered fleet through the sale of excess military aircraft capable of carrying 3,000 to 5,000 gallons of retardant. The aircraft of choice cited in the study are those that Terry briefed you on. The total retardant capacity for initial attack on large fire suppression was someplace between 138 and 145,000 gallons of retardant, based on those contracts.

The enabling legislation that allowed the interagency study group to make the recommendations about using excess military aircraft was the Wildfire Suppression Aircraft Transfer Act of 1996.

To date, no sales have taken place and none are likely unless OSD yields to congressional pressure and the Department of Agriculture becomes actively engaged in working with OSD to make a sale happen. Current OSD policy does not allow them to cut special sales except for one exception, and that's for law enforcement.

When Al and I went to visit with them, basically they said the Secretary of Agriculture has satisfied her requirement of the law, it says DOD may -- may conduct sales and basically they don't -- it's obviously not shell, so they have no requirement to conduct a special sale, which is what we need to set a proper business environment to modernize -- I use that word loosely, but to upgrade to all turbine-powered aircraft.

As a side note, the NATS 2 study proposed a transition schedule for converting to the turbine-powered air tankers starting in 1999. If this schedule could have been achieved, we would likely not have had the PV4Y accident, since it was scheduled to be one of the first air tankers to be retired when a suitable replacement was provided, and a copy of that letter from the chief of the Forest Service that lays out their priorities is in that package as well.

The status of the eligible military aircraft, as I've been able to determine: There are P-3As, Bs and Cs in (AMARK ?). The P-3As and the lightweight Bs are suitable for conversion to air tankers. The P-3Cs and the heavyweight Bs are being held for war reserve and foreign military sales.

MR.: How do you mean suitable for conversion?

BILL BROADWELL: Nobody has done a study, an engineering study to determine whether these aircraft can safely operate in the environment. I think we've established that point right up through right now. As far as suitable, I guess maybe that they can be, in fact, tanked and operated per as Aero Union is doing very successfully with the P-3As that they've got now.

There's interest by Aero Union in continuing to get more P-3As and accompanying parts. There may be some companies that would take on the lightweight Bs, the difference being that there is a different engine in there. It's a -14 and they want to keep their consistency to the -10s and somebody else starts with the -14.

More P-3s may become available when the Navy transitions to its multi-mission aircraft but that isn't until the 2010, 2012 period. However, that doesn't mean that these aircraft will be necessarily suitable, because my belief is that they'll have reached the end of their service life. They're being flown pretty heavily right now. It's not going to get any lighter in the future. So I doubt if there's going to be any airframe hours left in the P-3Cs. So we're still basically talking about a fairly small population of what's left.

There are apparently no C-130B and Es in AMARK that are suitable right now because they're all in parts. The Air Force obviously is doing it correctly and that they're using those airplanes to support their fleet and apparently they're going to be operating

their fleet for quite a bit longer until they get enough C-130Js in there to put these other ones back into AMARK. When they do that, again I think we're going to be seeing airplanes that probably have very high airframe hours again and we're right back where we started.

So the next subject is the current status of the large air tanker industry, which leads to sustainment. I believe that the public and government agency confidence in the industry's ability to continue to operate safely in view of the two crashes that we had this fire season and how they happened has been shaken and clearly a change is necessary and ergo that's why we're having our meeting here early in October is to come up with what we think is necessary to sustain this industry safely.

The industry has been accused of operating old, tired, unsafe aircraft, but it's been my view that old does not imply safe as long as the aircraft have not exceeded their airframe life and they are operated and maintained in acceptable airworthiness standards and therein lies the key question. What is an acceptable standard of maintenance for a 40 to 50-year old aircraft designed for military missions that are now employed in battling wildland fires in a consistently harsh environment?

The industry does not have continuing outside engineering support like the military or commercial airline companies experience with its aircraft that are current. It can be purchased for special requirements, for things like tanking and so forth, but day-to-day engineering support is not available generally to the companies and it certainly is not built into the rates, the contract rates.

The companies are basically left to their own devices to secure the proper maintenance publications and develop and maintain an FAA approved airworthiness program. This process has got to be improved.

Airworthiness programs must be revalidated in light of aircraft age and the operating environment. Thorough, in depth structural inspection programs must be implemented and conducted using the latest NDI equipment.

MR.: When you say that, that statement, you say airworthiness programs must be reevaluated, right?

BILL BROADWELL: I think we need to look at what we need to do to operate this airplane safely in the environment in which we're flying.

MR.: Whose responsibility is that? When you say this needs to be done, is that FAA, is that the Forest Service, is that the industry? How are we going to get to that point?

BILL BROADWELL: I think that's between the operator and FAA. I don't think the Forest Service has any -- they have a responsibility of wanting airworthy aircraft, but

their job of inspecting up to now been contract compliance. But the airworthiness program is an operator/FAA issue and I think that needs to be --

MR.: How are you at the present, the statutory structure of the FAA in regard to airworthiness of this aircraft, going to get to that? Have you got a congressional amendment? Are you going to -- how are we going to -- I think that's good but how are we going to get there?

BILL BROADWELL: I wish I could tell you and I hope we can come up with some answers with the operators who work with the FAA on a lot closer basis than I.

MR.: Because you're assuming that whatever the FAA requires the Forest Service is going to have to reflect in their contract?

BILL BROADWELL: Exactly. This is not going to be cheap.

MR.: And you're assuming that the Forest Service does not have the capability to make those decisions independently?

BILL BROADWELL: I don't think they're manned for it. And my take on it in the past is that that wasn't their responsibility, that they were responsible for evaluating contract compliance and whatever that cost and they go through and does the aircraft have a weight and balance, does it have the proper certification, do they have the pilot requirements, have they completed the required training and those kinds of things. That's my view.

MR.: Well, I mean, again in our briefing, that's why I ask the question. Our briefing yesterday with the FAA that was the first time it kind of came to my attention that this type of airworthiness certificate they're providing is just sort of an acceptance certificate that, hey, it was here's we got the military records and we got the aircraft and we'll give you this special certificate for use, but in terms of determining whether that use includes aerial firefighting, other type of risk, high risk I guess, I assume that might be a definition -- if I'm overstating it, I apologize, but high risk type of activity, no one is setting any standards.

BILL BROADWELL: That's part of what our meeting is going to be all about in October and that will be for the operators to make a stab at that and we may require some outside engineering help.

MR.: And how would we then get to that point to get the FAA's attention? I would be interested and I think the panel would be in knowing how you think we would accomplish that.

BILL BROADWELL: Well, I guess I need to defer that and provide you an answer after we meet. I can't answer that right now.

MR.: No, I'm not asking you to. I'm just saying, you know --

BILL BROADWELL: It's a good question.

MR.: I mean, it's good to make the statement that that's where we need to be, but within the present regulatory structure obviously there would have to be some kind of change --

BILL BROADWELL: I understand.

MR.: -- to accomplish that.

BILL BROADWELL: I understand that and that could be an issue. I got the picture on that one.

As I had said though that thorough structural inspections must be implemented and conducted, use the latest NDI equipment, perhaps by outside FAA certified companies. And the inspection programs must be financed by equitable contract rates.

And I believe these programs are required to number one both sustain the current industry and also to ensure safe operations and future modernization programs. We need to evaluate whatever we use in the environment in which we're using it to ensure that we're maintaining it properly.

So how we got to where we are now. It's my view that at the present crossroads we're here because we are trying to run a calendar year 2002 air tanker program with a 1970 pricing mentality. Yes, contract rates have increased over the years with inflation; that's built into each time they issue the contract. But the excess surplus parts the operators were able to purchase years ago have worn out and the operators have been required to rely on expensive and not always satisfactory commercial overhaul and repair and it's particularly with the radial engines, that expertise, we're losing that in the country because everything is turbine, jet or turboprops.

In short, the government wildland firefighting agencies have been receiving large air tanker services on the cheap for a long time and have not adjusted their thinking to the new era and new requirements.

Perhaps an independent, some sort of independent study to baseline an acceptable range of item and costs necessary to sustain the large air tanker industry might be in order, and here it's a real dilemma with me as we've got a competitive negotiated contract. The contractor is responsible by law to get the best deal for the government, but then the operators are trying to obviously make a profit, but then they're trying to get certain things justified in a contract, but from their side of the coin they're saying they always cut me down and if I won't pay for this I'll just go someplace else because somebody else will give it to me without doing this, and I can't give you a specific because I'm not part of those negotiations. That's never been shared with me.

MR.: But it's the federal government's responsibility to build into that contract safety.

BILL BROADWELL: Exactly.

MR.: And if safety is not built into that contract, it would be very helpful in your meeting to tell us specifically what needs to be in that contract to ensure the safe operation of these aircraft.

BILL BROADWELL: Well, exactly right.

MR.: Because, you know, the bean counters usually win but when you have a situation as we have now where there's a crisis and there have been accidents and people killed as a result of these operations, then adjustments need to be made to ensure the safety of these continuing operations and that is a governmental obligation and responsibility.

BILL BROADWELL: Yes, sir. And it's our attention that with what we believe is necessary, as we pass that to chief, that that would, in fact, be funded. That's the whole purpose.

Just a couple other short comments. The operational effectiveness: NATS phase 1 and 2 evaluated the benefit to cost of the large air tanker program as 8.7:1 in 1995 dollars. In other words, about $93 million worth of natural resources were saved at the expense of around $11 million, $12 million for the availability that they paid for that. That didn't include flight rates, I guess.

An all-turbine fleet benefit to cost was evaluated to be at 6.38:1. It's in the NATS 1 and 2 study.

From a safety standpoint, the large air tanker industry performance is a matter of record. It is much higher than we certainly would like, but the general trend in fatalities over the last 40 to 45 years has been downward, with a few spikes in there, and we continue obviously to strive for a zero accident rate. In fact, over the last 10 years there were five years with no fatalities, which include the three consecutive fire seasons prior to this.

And frankly up to this year all the accidents have been related to pilot error kinds of things, but this year is different obviously.

I believe there some factions within the country that may view the industry as a bunch of cowboys in airplanes, and, in fact, perhaps this may have been true a long time ago but the fact is that the present industry consists of dedicated group of professionals that continue to make suggestions and contributions to safer and more effective operations. One area that we may address in our association meeting that has a big

impact on safety is that of the adequacy of training, both initial and current proficiency -- Terry talked on that -- as the industry has long believed that recurrent/proficiency training is not supported adequately in the contracting process.

As far as our strategic guidance, the large air tanker industry is a capital-intensive business. That's why we need a strategic guidance. It needs that plan in order to be able to plan and execute a modernization program and to do it efficiently. The current strategic guidance is resident in the NATS 1 and 2. That's what we're living by right now and perhaps this guidance needs to be revisited, and I suspect that the Forest Service is, in fact, looking at that.

It may be that the most cost-effective way to go -- was or is to go with excess military aircraft with 3,000 to 5,000 gallons, but the reality of the situation is we may not be able to get here from there because of lack of aircraft or we couldn't get through the policy decisions and we may have to back off to something that is less than 3,000 to 5,000 gallons because those airplanes we can get are better shape, they're newer, there may be new production. You'll hear about that in a later meeting, I think, in Salt Lake City from one of the companies in our association.

So that's the kind of thing that we need to be looking at, but we need to do it early so our operators can, in fact, plan.

MR.: Can anyone tell us why we need 3,000 to 5,000 gallons tankers?

BILL BROADWELL: You'd have to go to the Forest Service and get somebody to brief you on that study, but basically that was what they thought was the most effective initial attack ability, multiple drops. These tanks are designed to drop multiple drops as close to the same volume as they can at each one. They have to meet pretty strict requirements so they can stay out there and make up to seven or eight drops, not very big ones, seven or eight, or they can drop two or three drops. So the more you have then the longer you can stay out there and the more efficient you're at putting out fires or retarding advancing fires.

MR.: So, in other words, the advantage is not just dumping 5,000 gallons, but the advantage is having that much so if you need to make two or three passes at the same location, you're there and you've got the retardant to do it rather than having multiple airplanes in the air?

BILL BROADWELL: Exactly.

MR.: Even I understand that.

BILL BROADWELL: There are two types of tanks, but I don't think that's relevant to really what we're talking about here. They are efficient. They meet strict federal performance specifications that are contained in the interagency air tanker board

manual. You might want to take a look at that eventually, but that tells you what kind of flexibility you can get out of these tanks.

MR.: (Off mike.)

BILL BROADWELL: Yes, sir.

TERRY UNSWORTH: One of the reasons that we are looking at the feasibility of using wide-bodied aircraft is in theory a 747 would be able to drop 22,000 gallons and that's a lot of retardant or a lot of water, provided it's over suitable strain and, of course, it would have other uses as well for other reasons. And one harmless, relatively harmless one of those would be ocean oil dispersal, oil spill dispersal. But we are about to go into simulator time with a 747 to see just how it handles under firefighting conditions.

The additional advantage of that is there is the possibility of dropping a larger amount, excepting that some of it gets lost as it drops, vaporizes, whatever. And dropping at the best time of day or, should I say the night, there's an ideal time apparently is 2:00 in the morning for humidity reasons and everything else to drop on a fire, but to do that and do it safely you'd have to be dropping from a greater height. But if you're dropping a lot more volume, then you're still going to get a lot more on the ground and that's one of the reasons why we're keen to see some support for further investigation into large wide-body platforms.

MR.: Excuse me, Terry but what we've heard is that there's a reluctance to do night operations for safety reasons of the people on the ground.

TERRY UNSWORTH: Absolutely.

MR.: So to drop at 2:00 in the morning on a regular basis, that again requires a change in philosophy, does it not?

TERRY UNSWORTH: Absolutely, and I'm not saying it's the right thing to do or otherwise; it's just that I believe that's the most effective time to drop, so I'm told by the experts, and maybe there's a possibility that a suitably equipped aircraft dropping a greater volume would be perhaps very effective from a safer height, let's say a thousand feet instead of between 100 and 200 feet.

MR.: So just to restate that a different way, changing the philosophy from aerial operations in support of the ground operations, in other words bound the fires so the ground guys can put it out, you'd have to step away from that if you go to night operations possibly to where the air guys are responsible for containing and/or putting out the fire and in the morning the ground guys show up to do whatever. Is that one way to look at it?

TERRY UNSWORTH: Yeah, possibly, absolutely.

BILL BROADWELL: Still there be some sort of infrared analysis that would guide to where those drops should be (inaudible) so the commander would obviously be involved in those decisions I think.

AL HYDE: We're out of time. One last question for the panel for Bill; Bill, any final comment you want to make?

MR.: Can I ask the outcome?

MR.: Sure.

BILL BROADWELL: I just encourage you to take a broad look at the industry. I think we need an independent evaluation of just what this industry is all about and where we're going to go in the future and I think you all could do that by taking a look at the large company with resources that they have versus some of the smaller companies. My job is to sustain this industry. Given that the Forest Service says that is an essential capability they need, my job is to help these companies to sustain themselves and I'll try to do that the best I can. An independent look from experts like yourself is greatly desired.

MR.: I'd like to throw out something for you to think about, because we did the same thing yesterday with the Forest Service. If you were king and the whole world changed, from a business standpoint does it make sense to switch to instead of a specifications or requirements driven process for fighting fires, you went to an outcome driven process such that let's just say, Terry, you are given a contract, let's just start with, say, $10 million a year, but your job within a certain area is to make sure that all fires are put out ASAP, and if you do the job you get a bonus, if you can't do it the contract is structured accordingly, would that drastically change the way you as a businessman would operate, you'd staff, how you would equip, et cetera, the whole thing, as opposed to being told you need to do this, this and this?

TERRY UNSWORTH: The answer to that would be yes, it would have to change.

MR.: Any ideas? I mean, can you give us a feeling for how it would go versus using large air tankers, old airplanes?

TERRY UNSWORTH: We would have to change the command and control of that, the reporting structure of that, the effectiveness measures of doing that, the type of platforms maybe. It may push us into having a fleet of helicopters as well as fixed wing to meet the demand, if you like, on the ground. So it would certainly have a great effect on how we run business and a change from what we're doing today, sure.

MR.: Well, let me just ask one question and see if either Jim or Earl have anything. I would encourage your association to provide the board with any type of written input after your meeting. And we all know that the FAA doesn't want any more

responsibility and the Forest Service doesn't want to spend any more money, but I think the panel is focused on our mission and to the extent that you can give us not just how the world ought to be but ways, specific steps that need to be taken to get where you think we need to be, that would be helpful for our deliberations.

Jim or Earl, have you got anything?

MR.: I think Terry has already provided us a good bit of that and I very much appreciate that and thank you all for taking this time.

MR.: Earl, last question and then were done.

EARL MCKINNEY: I promise. It's not so much a question as it is borrowing on Mr. Hall's comment. Can you maybe in your comments include more on -- you both have mentioned training, and I think, Bill, you had mentioned initial and continuing training is sort of underdone or not well thought out. In whatever you file up with this meeting with can you be more specific about is that flight training, is that ground training, is that training with the firefighters? Can we have more about that kind of thing? It would be really good.

MR.: With all due respect to Al, one last comment. If you all don't know how to have a safe operation, we are in trouble, so you need to tell us based on your experience what type of inspection needs to be done on these aircraft to be sure they're safe and the wings don't fall off and things like that.

And then the second thing is then what type of training needs to be done in terms of the crews and how are you going to monitor that training. Most of my experience with the board obviously is with the use of QAR programs in Europe and other programs using recorders where you are able to give real feedback to the crews and an evaluation of how they're performing, and that is something I hope that you'll consider.

But we'd like to have your best ideas because you all do it every day and you should be the most knowledgeable folks, but to have that level playing field the association has got to come together and help define what that level playing field is.

AL HYDE: Thank you.

(End of segment.)

AL HYDE: This is Dean Breace (?) of LGI and he'll introduce the other members with him here and I'll turn it back over to you all.

DEAN BREACE: Good morning. My name is Dean Brace, CEO of LGI, Liberty Group International. I have with me today from Moscow, from Russia Mikhail Kosovo (ph), who is responsible in the aircraft manufacturing of the BE-200 (?) that you have in front of you. I also have David Morrison, who is in our public affairs staff at LGI and I

also appreciate Bill Chapman coming from the senator's office. Our two senators here in the state of Georgia and our governor have become familiar with the BE-200 and our efforts to try move the aircraft forward.

What I would like to do for the panel is to go briefly through some photos that we brought to show you this morning and give you some background on the BE-200 and then I think it's probably more valuable to do dialogue with you on your questions that you have about the aircraft and what the potential for this is in the United States.

The BE-200 is manufactured in Irkutsk and it is, as you can see from the model there and from this photograph here, a high-wing, t-tail aircraft that has twin hulls. There's an outer hull and an inner hull. That's because it is a true amphibian and with the ability to either operate from water or from land.

As an amphibian it can use any B class field in the United States, 6,000 feet. It also can in approximately the same distance operate off of any of the 25,000 miles of navigable waterways that we have in the United States, but it primarily is designed and its function is as an air tanker in the mission of forest fighting.

The facility where it is manufactured at in Irkutsk, it's an ISO 9001 facility, which is state of the art in terms of what it can produce. The reason I took this snapshot here is you'll see an SU-35 just over in the background. Not only is the design and the efforts that have gone into it and the thought process there, but also in the manufacturing is as good as you're going to find I think anywhere in the world.

The flight deck, US avionics, it's a glass cockpit. Our pilots from LGI have flown the aircraft, have been extremely impressed with the aircraft, with its handling capabilities both on land and on water.

This diagram of the BE-200 I think is good because it shows where the tanks actually are. There are eight tanks below the wing between the outer fuselage and the inner hull and then on the main deck here it also has chemicals that can be, when it's used in the scooping mode, can be utilized in order to mix water with chemicals in order to increase the effectiveness of the drop. But as an air tanker primarily it can fill the eight tanks and then go out and as directed by the command with the avionics that are on the flight deck that you have there, with global position, infrared and others, do something that I think none of the other aircraft can do in terms of consistency and accuracy over a long period.

EARL MCKINNEY: Dean, can you comment on takeoff distance in the amphibian mode, heavy weight? What sort of distance do you need?

MIKHAIL KOSOVO: Typical takeoff distance is about (16 ?) kilometers.

DEAN BREACE: Well, we have a PowerPoint presentation with all the basic that we've converted for you from meters to feet, but we also had a video that we brought

and we're more than happy when your schedule permits we could go out to get the projector and show that to you so you can actually see it. As you probably are aware, we offered even to bring the BE-200 here to Atlanta to show you gentlemen, but because of your busy schedule we were asked not to. The door is open if at any point you want to go over and actually see it. We'll make arrangements for that, too.

But the actual operating distance of the aircraft off the water is 4,270 feet, so it's not a lot of difference from what it is operating off the ground. And I think you see that when we have pictures of it on the runway and operating off the water it's very effective.

The two engines, they each produce 16,000 pounds of thrust. The Ukrainian engines that we're quite happy with in its current mode, but we are also talking with Rolls Royce. Rolls Royce has signed an MOU, memorandum of understanding with the manufacturer. We are also talking with Eads, who has signed a memorandum of understanding in order to move the program forward to the next level and we're looking there.

This snapshot here is just showing the ability of a single drop. With eight tanks, the pilot, depending on the direction from the ground, can put them out in a variety of patterns, depending on what is called for in the particular fire that we have at hand.

Here's a snapshot if it just across the water.

As an amphibian, while it can land and take off at a runway or it can land and take off on a waterway, it also once it lands in the water can put down the landing gear and come up on a ramp, which is not different from prior to World War II how we had a lot of our aircraft. Many of those ramps are still around. Whether they're still effective I don't know, but it's a very cost effective way for building a facility near any of our 25,000 miles of navigable waterways.

I mentioned the different patterns. This is from our slide presentation with the actual coverage. And what we are going to do is we've got so much data that we've put them on CDs that we've been given an address to mail this to, and if you each want individual copies we'll be more than happy to send that to you, and I hope that format will be okay for you if we do that, because when we start printing it, it's too much.

And then another picture in the skimming mode. When it's operating as a water-based tanker it takes 14 seconds in order to scoop approximately 3,000 gallons, so that's very effective.

And also when we talk to, we met with the Forest Service in Washington on Monday, we gave them a briefing on the BE-200 and one of the things that we stressed is that this aircraft has multiple uses in addition to its primary role --

(Audio break, Atlanta II, side A to side B)

DEAN BREACE: (In progress) -- on it, on the flight deck. And to convert from one format to the other would be fairly easy for us to do in a short period of time.

To give you a little bit more background on the BE-200, it's the predecessor, where the design comes from is an Albatross, which holds over 130 world records. It's similar in appearance. The main difference is the Albatross is much bigger. This one ten years ago was focused on firefighting. The Russians have a similar problem with their huge forests that we do here in the United States and fires there cause considerable damage and this aircraft was designed with that specifically in mind.

The trips that we've made over there and actually flying the aircraft and visiting the facilities, the design, production and meeting with the staff in a variety of different locations, we come from in LGI a background of ten guys with about 220 years of airline experience. That's our aviation background, pilots, mechanics, administration. And we are most impressed with the fact that safety to us is as important to them in every step of the process as it is what we come from. On the airline side, safety is by far the most important and firefighting safety is the number one priority. We think that we have been convinced without any doubt that they share that same belief, that safety is the number one priority, both for folks on the flight deck and also for people on the ground. I think that the aircraft in the years to come will be recognized around the globe as the true flagship of the firefighting fleet.

Our goal at LGI as the distributors for this aircraft in the United States is to work with the air tanker association, to work the individual tanker folks and try to find a way to move this aircraft into the program along with the Forest Service.

We know that the current aircraft out there are probably averaging maybe $2 million on the heavy tanker side. This aircraft obviously is going to be considerably more, but at the same time it can do much more. It's not there just for sunrise to sunset. With the avionics on the flight deck, in fact, it could operate, if there's not a question with safety on the ground, 24 hours, it could operate at any time.

Some of the fires we saw this summer erupted from inside of a 24 hour period from relatively small fires to where they were almost 100,000 acres. I mean, it was a pretty amazing change overnight. This aircraft with infrared can see through smoke, it can see through clouds. It can see things that even the lead aircraft would not be able to see. With the jet aircraft on there, jet engines on there obviously it can move about the country very quickly in order to be repositioned as requested. It also has the ability to go internationally and that's one of the things that we think is important that we're going to be talking with the air tanker companies to think in terms of a global system, not just as a U.S. That way obviously a much more expensive aircraft we have to put it in service more months of the year in order for it to pay the bill, whether it's purchased or leased.

We feel that this aircraft in its current configuration has the ability to make a significant impact here in United States on the forest fighting that has happened in the past. We would like to see the aircraft brought in this next year under a special program. We talked with the Forest Service about it. We started to talk with air tankers about it. And what we have in mind is a one-time special 5-month lease, wet lease where we would provide the pilots, the mechanics, it would be a turnkey operation and we would demonstrate the unique ability that this aircraft has as an air tanker, as a scooper and in any other capacity that the Forest Service would so request us to provide. And we are moving quickly we hope towards reaching that goal.

The Russians, both at the manufacturing, at the design bureau have been very good, I think, in order to make a special effort for this next year, if we can work with the authorities here in order to find a way to bring into the country.

I've brought some brochures. We have a lot of facts and figures that we can share with you.

So with that brief comment, I would like to now open it up so that we can hear exactly what's on your minds and answer any questions that you may have.

MR.: Dean, you mentioned at the break that you have seven of them in production now.

DEAN BREACE: There are currently seven that are coming off the assembly line that have been sold to the Russian emergency services. They will be in service full-time for next year. In fact, it's one of these aircraft that we've negotiated an agreement to bring to the United States for next year for five months, if we can be successful and first reaching an agreement with one of the air tanker companies that already have a contract in place with the U.S. government and then two, having the Forest Service folks agree to pay for the cost that would be involved with that.

MR.: And will this airplane be certified in Russia?

DEAN BREACE: It's already certified in Russia.

MR.: It already is.

DEAN BREACE: Yes.

MR.: Okay. And do you intend to certify it here?

DEAN BREACE: Absolutely.

MR.: A separate program or under a bilateral of some sort?

DEAN BREACE: Well, the bilateral we have been discussing that with authorities on how we may be able to bring it in. It's not approved under the U.S. rules and regulations at the current time, but the aircraft has demonstrated its abilities in quite a few countries already in Europe, in Asia and we're hoping that the data that has already been collected can be transferred to the proper authorities and the assessment made that, in fact, this is a very airworthy aircraft that should be allowed in under a special permit for one time in order to demonstrate its abilities so that we can move forward in the program.

MR.: What are the U.S. rules and regulations and what are your problems right now in why the aircraft is not accepted?

MIKHAIL KOSOVO: Its bilateral covers almost all parts of the aircraft. It's the requirements of the FAA must be an American engine, American avionics and the aircraft built under the AR-25 rules. It's covered with this aircraft because we certified this aircraft under AB-25; that's Russian regulations. Its equivalent of FAA rules under bilateral agreements.

Firefighting aircraft have some very few additional necessary regulations, which we must cover, and we are discussing now with the FAA how we will solve this problem and we expect that this aircraft will be certified under FAA in 2004 with a Rolls-Royce engine and American avionics.

DEAN BREACE: When we discussed bringing it and to show it to you gentlemen, the FAA said we would have no problem bringing it in as a one time special permit to demonstrate it, but I think where it really shows its capabilities is to put it actually into operation, and I think that next year in Europe and in Russia this will be demonstrated, but we are anxious with the agreement we have currently in place with the Russians to try to see if we can find a way to bring it in for next year.

MR.: Can I ask some questions about you talked about a 4,270 foot takeoff rule. Did you say that was empty or fully loaded?

DEAN BREACE: No, that's full, fully loaded.

MR.: So that would require -- you know, I'm not amphibious pilot. Is that almost then a two-mile -- I mean, you've got a mile for the takeoff and you want to have some opportunity to abort and do some other things. I guess I'm trying to get a feel for in the western U.S. have you looked at the number of lakes or bodies of water that are capable of supporting a mile and a half of --

DEAN BREACE: This can land in waves up to three feet.

MIKHAIL KOSOVO: We can use it as an amphibious aircraft and we can use it as a normal aircraft, it's no problem. We can use it like regular air tanker.

MR.: Sure. I guess I've been a resident of Colorado for 12 to 15 years. I can think of --

MIKHAIL KOSOVO: We have map of -- we have analyzed different places in the United States, but it's necessary to perform this work with the Forest Service.

DEAN BREACE: We need nine feet minimum depth and we need waves no higher than three feet, so we can scoop from the ocean if we needed to on any of the coastal areas.

MR.: No, I guess I'm trying to think of the interior, the Colorado, Utah, Wyoming type areas. How many bodies of water are there in those states that would support a mile and a half of straight distance into the wind?

DEAN BREACE: Yeah, I don't know if we started looking at that, but again the primary mission of the aircraft is as a ground-based air tanker and then secondary it has all these other abilities as a scooper, as a cargo carrier, as a passenger carrier for smokejumpers, as a platform for them. So it can do many different missions with inside the way it's being presented at the present time.

MR.: Have there been any comparisons with downward visibility out front of the cockpit, comparisons to, say, C-130s or P-3s or other aircraft currently in use?

DEAN BREACE: Well, having been on the flight deck, I'm not a pilot, but the flight deck visibility is outstanding. The pilots for us at LGI who have flown the aircraft not only like the visibility from the flight deck but they also like the avionics and the fact that while they've got 20 and 25,000 hours of flying time from military aircraft to commercial aircraft, they see some of the heads -up technology we've been over talking to Lockheed; Lockheed has some heads-up displays that we were talking to them about as a potential on this aircraft to enhance it for 24-hour capabilities. We see that if I take our pilots for their word that the visibility from an operating standpoint is outstanding.

MR.: And I guess maybe it just shows my ignorance, I'm not sure, if you're going to drop at the same, whatever it is, 150 to 300 feet that the current --

DEAN BREACE: Absolutely, and that's one of the advantages of this aircraft. I mean, it's 107 feet by a 105 by 29.5 and the power that's on there it has the ability to maneuver very good in tight situations and it can get low but it can also get out of those situations quickly. I think one of comments with bigger tankers is you're not going to be able to put a 747 150 feet off the ground. I wouldn't want to be flying with that that big of an aircraft. With this one here, one of pilots described it as a sports car that is built like a tank.

MR.: Is wing loading about similar to the 130 and P-3? I'm concerned about turbulence and other sorts of factors.

DEAN BREACE: The engineers have made the correlations to a lot of other aircraft, but I can put those on the CD when we transmit that to you.

MR.: Thank you.

MR.: What's the sticker price on this?

DEAN BREACE: We have talked about a lot of different factors that go into that obviously from what's in the package on the flight deck, after sale support, but we are roughly looking at for the first operators between 20 and 25 million, which is going to I think be very competitive for an aircraft that size.

Of course, with different engine options that will affect the price. An operator may come and say they want other equipment on there so that they can do other missions for the government. We would be able to add those to the platform.

But I think that what we're proposing for next year, an aircraft generally of this size in the jet category you're going to look for maybe a per hour cost of $10,000 and we have suggested a contract for 50 hours minimum per month of 5,000, in that ballpark, with after 50 hours dropping it considerably.

So those are the types of figures, ballpark again, that we will be negotiating with air tanker companies here in the United States in order to see if we can find one company who sees the same that we do of the potential of this aircraft in firefighting here in our environment and being able to move the program forward.

MR.: Dean, what do you see as the biggest impediments to this airplane going into service here in the U.S.?

DEAN BREACE: I think it's a perception problem. When I first talked to financing people or talked to folks in the government, the first comment is usually something about the fact that it's Russian, and I quickly remind them that some of the best names in aviation have been Russian. I mentioned Sikorsky as an immigrant who came to this country, built and designed planes for a long trip at Pan Am, was very successful, then moved on later into helicopters.

I've flown on through the years a lot of different aircraft and I am very impressed with this, but more important than me is I've taken the pilots, I've taken the engineers, I've taken our maintenance guys and they have walked through the plane, they have flown the plane and they're impressed. So based on that we've continued to move forward, we've signed contracts with Beta Air, with (IAPO ?), with (Bereave ?) to try to bring this airplane to this country.

And I think that it's natural when you don't have a lot of facts or figures or experience with something, it's easy to just say, oh, that's from this country and it's not going to be acceptable to our standards. In fact, the aircraft, it's not something on the

drawing board; it's already operating. We've already flown it. It's building up a database of numbers that will support the conclusion I believe that it's something that the U.S. should work hard to see demonstrated next year for a five-month contract.

MR.: What about supportability or reliability? Do you have a handle on some of those things so you can give us an idea?

DEAN BREACE: Yes, sir. What we have talked about doing is bringing over two crews of pilots, bringing in a half a dozen engineers and maintenance people who have spent years working on this airplane to bring it forward. We've discussed flying it in with the necessary parts that we estimate could be needed in order to operate it.

Again, LGI with our aviation experience, we expect things that we fly to have a 99.9 percent dispatch reliability. There's no way when we talked with the Forest Service, we didn't say anything but we smiled when they said the other day they have a 90 percent dispatch reliability across the board. If they get that, if that was the correct figure I jotted down and in the airline business you would never be able to continue to operate if you had that kind of a record.

We can dispatch this aircraft in from 9 to 15 minutes upon given notice. We feel that being a brand-new aircraft, being an aircraft that's tested, being an aircraft that has little hours on the engine or the air frame we are not going to anticipate or we do not anticipate the type of problems normally that you would when you have an aircraft that's 40 or 50 years old where it's prudent to continue to do maintenance and a much closer schedule than what we do on a brand-new aircraft similar in aviation to anything that's new like this that's already gone through the approval process.

MR.: Well, you know, we are not in the business of selecting either Pepsi or Coca-Cola.

DEAN BREACE: I know that.

MR.: But let me say first of all, but just because you mention this, I had the opportunity to spend seven years at the National Transportation Safety Board. We started in the late '80s with a very close working relationship with our counterparts in Russia and the technology and the engineering, which I firsthand saw in Russia in terms of their capability, is obviously world-class. So I know impressions, you can't do much with impressions in the world other than change them, and I've seen a lot of nice things change in my lifetime.

But at the same time, what I'm interested in, what we're interested in is a process. What I think the panel, at least what I'm interested in individually is that the Forest Service have a safe aircraft to perform the mission that they are going to ask people to perform, that obviously it's effective and cost is certainly something they have to look at.

But you need to be more specific if there is something you want this panel to look at in terms of the present process, if there are obstacles in the present process for you to get this aircraft considered, those are things that we would be interested in looking at.

In terms of the engineering and technology I think our friends in Russia have the ability to build an aircraft, just a very good aircraft that would be suitable for service. I had to fly down here. I think it was on Canada Air last night, so I think there are people in other countries capable of building aircraft and I'm as red, white and blue as they come, but nevertheless tell us something about what are the problems that this panel, if you've looked at our mission and scope, what we're supposed to look at versus what you're trying to do, if there are things that we ought to be addressing, those are the things that we would be interested in, because even if you have a wonderful aircraft here, none of us at this panel have $20 million. At least I don't. Do you, Jim?

MR.: No.

DEAN BREACE: Mikhail?

MIKHAIL KOSOVO: I just can't speak that we are -- Irkutsk Aviation Production Association is the greatest company in Russia, aircraft company in Russia. It's about 10 years. We hold most debt. In some last years we grossed up to 60,000 employees. It's a big, gross company. And we produce support aircraft. It's 26 and 30. And now we have started this aircraft and we are very seriously looking for business and we are seriously looking for even mostly international business, because of Russia is still a poor country and we cannot sell all the aircraft in Russia. And we are looking seriously in Europe and United States.

And I think we have very good agents here, the LGI company, and with the help of this company we will develop here Western type support and we are sure that we will certify this aircraft in the United States and this aircraft is not Russian aircraft. It's just we built only the airframe. All our equipment is international. It's a Rolls-Royce engine. The avionics is from the United States, APU from United States, interior from Britain and so on. We included all our knowledge to this design and we got all best parts for this aircraft.

DEAN BREACE: To be more specific to your question, coming back to that, we've written to the FAA, we've written to the Forest Service, we've written to a number of other folks. We are moving as quickly as we can, but one of the things is I think that we are trying to negotiate an agreement in principle subject to the approval by the authorities with one of the air tanker companies. Once we can have that, then the FAA is going to say okay, we're not going to start working on something looking at it if it's just speculative. We want to know that there is a contract in place. And we hope within the next three to four weeks that will have such a contract and with that move quickly forward to say with the authorities how can we get this in for next year to do what it's been built to do, which is specifically fighting fires, and show, one, that it's effective, that it's multipurpose and then two, the $20 million, how can we structure -- we pay for the

national fire plan. It's gone from 500 million to it's now up to $2 billion and of that $2 billion a portion is for both fixed wing and helicopter. And is Bill Broadwell still here? The figures that I've been told, and Bill, speak up, please, that only 20 percent goes to fixed wing. Is that correct?

BILL BROADWELL: I don't know the percentages.

DEAN BREACE: Well, that's one of the figures we had pulled down. And we think that helicopters, other aircraft, lead planes, they all have a specific role to play in forest fighting. This as a heavy tanker has a role to play and it's superior we believe to anything else on the market in terms of speed, safety, capacity and reliability.

So when we moved from propeller aircraft to jet aircraft at the end of the '50s and into the '60s there was a huge increase in costs but at the same time there was a huge increase in benefits. This aircraft has many benefits that it can bring.

This summer we lost 10,000 square miles of the forest that have burned and that's the equivalent of the six cities you're going to visit, if you add all the square miles in each of the cities and they would have to burn 12 times to reach the amount of damage that's been done this year. One company, one tribe who had a stand of their trees that burned, on the TV, the spokesperson for that tribe said in just a few hours we lost $200 million worth of our resources and that's destroyed our company. Well, 10,000 square miles, how much does that cost the government, the population above and beyond the safety issues of the fact that we've lost 20 people in firefighting this year, three aircraft, six pilots? The dollar amount, when you look at both public and private, it's dramatic. So is $2 billion dollars enough for the Forest Service? I don't know. Should we find the money to put more money into the firefighting? I think so.

MR.: But back to the certification of the aircraft, which is your first step, right?

DEAN BREACE: Yes, sir.

MR.: Do you have to have, Bill, do they need to get to this interagency air tanker board? What role does that play? I'm trying to understand the process of we're told it's difficult to get foreign aircraft considered for this assignment and I'd like to know if that's the case why. Maybe there's good reason. I'm just trying to understand the process.

BILL BROADWELL: They would have to meet the requirements of the interagency tanker board, which sets them the requirements of aircraft requirements, but more specifically the tank performance standards as to how they can drop people, loads within a certain percentage of each other and things like that. So, yes, to answer your question.

MR.: Have you been to the interagency air tanker board yet?

DEAN BREACE: We have spoken with them. They have promised to send us information, but that information has been transferred in the past. In designing and building the aircraft, both the design bureau and manufacturing plant had that information, correct?

MIKHAIL KOSOVO: Yes.

DEAN BREACE: So all of that has been considered. So I mean the long-term goal from the beginning was to look at Western markets so that data was acquired. So we believe that when it goes to the interagency board that this aircraft will stand the tests that they put out there.

MR.: Are you trying to look at certification in any other countries?

DEAN BREACE: Yes, sir.

MR.: Which ones?

DEAN BREACE: No. The certification, once it has U.S. certification, I mean that will be excepted around the globe.

MR.: Okay. So you're not doing anything with the JAA or anything else right now?

DEAN BREACE: Well, EADS is involved but I think really that the focus even with EADS, if they move their MOU to a closer relationship will be one of seeing that we work with the FAA here. I think they are the key global agency that once certified by them everyone will agree that this is, in fact, what we say it is, a safe aircraft.

MR.: And what type of certification are you trying to get in the United States?

DEAN BREACE: Well, we're looking at first for the firefighting FAR-25.

MIKHAIL KOSOVO: FAR-25. In principle we understand how we will certify this aircraft and we know the procedure. The procedure is understandable. It was clarified during long-term negotiations between the FAA and Russian register in about six years. And now everything is understandable and we are sure that we have no obstacles for certification in 2004.

At the same time, we will certify it in Europe. We have an agreement with EADS and they already have started to work with us. At the same time, we will certify this aircraft in Europe. We have enough money for certification.

DEAN BREACE: The bilateral between the United States and Russia paragraph 5 says that from time to time new technologies will come along and that special circumstances will dictate that governments on both sides should move quickly in order

to embrace what is at hand. So we would hate to go down that route, but we hope that by going through the channels that we're being told that we can get it approved for long-term, but even for short-term find a way to bring in into the United States for the next fire season beginning in the spring of next year.

MR.: Dean, in that regard, whether or not this five-month lease or anything like that were to come about, is there any place in the world where, say, a team of U.S. Forest Service industry folks from the United States could go and spend three, four months observing this plane doing what it's doing that might be comparable to what we would find here in the United States?

DEAN BREACE: We would be more than happy to set up the opportunity for anyone from the Forest Service, anyone from your board, from your panel, anyone to come and visit firsthand and see. The aircraft this year has been demonstrated in Germany, in France, in Greece, in Russia and Korea, in Japan and Indonesia. There are quite a few countries and we have a scheduled list of when it's going to be demonstrated. I don't think we need to take someone over for that long a period of time. I think because of distances involved, if we took some folks over even for a three to five-day trip and made it concurrent with one of the other exhibitions that we have, they could easily see what it can do.

But again we were offered before to bring the aircraft here and demonstrate it to you folks. If that's something that's necessary, we'll be more than happy to do that. But I think that in the short-term, yes, the door is wide open. If you want to go or anyone in the Forest Service, we can make those arrangements.

MR.: I guess what I'm asking is I need clarification. Is the plane not being actually used at this time for real wildfire fighting purposes?

DEAN BREACE: There are two of them that were prototypes that have done all of the displays and demonstrations and that's where the data came from to get the certification. There are seven that are on the assembly line that are coming off now that will go into operation with the Russian emergency services beginning in the spring of next year when their fire season is concurrent with ours. And it's one of those aircraft that through the manufacturer and the others involved they've agreed to do a sublease back to us to demonstrate so that the Forest Service, the FAA, all of the other parties involved can be familiar with this aircraft and all the possibilities it has for the future of firefighting.

MIKHAIL KOSOVO: And we have a special demonstration in France in this year. The Ministry of Internal Affairs of France gave us special requirements and we demonstrated this aircraft in accordance with their requirements. It was a special test program. They have estimated this aircraft. And now our people are in France and we are looking for the same program in France like we have proposed for United States.

MR.: Could I ask just a general question of how you see the role of heavy tankers impacting firefighting suppression tactics, for example, the relationship between this kind of plane with lead planes, how that works? (Off mike) -- the question a little bit more of the delivery heights in terms of where you see (off mike) -- upper ranges of that? I realize you can do all that, but then also where do you see it best fitting (inaudible). Is it really about initial tact, is it really about large fire suppression in terms of the load it's carrying?

DEAN BREACE: I think that because of its capabilities in the 3,000 gallon range, because of its technology on the flight deck, it supersedes a lot of the thought that went into planning for the future in the past. And I'm not going to sit here and criticize someone who has 30 or 40 years of experience, but there's a gentleman who you may already know or you'll meet during the course of your visits -- his name is Arnold Cole. He was one of the original firefighting companies here United States. When he retired he sold out. He's at least 75 now and extremely knowledgeable. We've talked to him at great lengths to hear his thoughts on all variety of subjects of how this aircraft would best fit in and he has seen the videos, he has seen the data that we have sent him. He feels from his perspective that first we must fit in with the Forest Service and the rules and regulations that exist today and that when there's an opportunity to demonstrate other capabilities of the aircraft then we can shine. But I guess to put is simply you have to walk before you can run, but I think in the future this aircraft will be seen with its jet capabilities to be able as an initial attack aircraft to go quickly, if that's the direction that needs to be taken.

One thing too that we've learned in talking with folks in the Forest Service, there are some fires that they like to burn and the reason for this is that there are trees out there in our forest that cannot regenerate themselves, their seeds until fires reach a certain temperature, and once they do then the forest can restart itself. So it's not always from the Forest Service perspective, from what we've been told, important to put out fires quickly, that there are other means, there are other reasons in thinking and experience behind why a fire should burn.

But from a purely a position of putting a fire out, we believe that the BE-200 with its capabilities, there's nothing that can match it in terms of frequency, of dumps that it can make with either retardant or water compared to any other aircraft that's there.

Again, it was specifically designed for firefighting so it gives it really some unique abilities. The airframe has not the modified from one type of aircraft to try to accommodate water or slurry or retardant to do another job. So I mean in that it's really a multipurpose firefighting aircraft.

MR.: In terms of the overall development costs of this would there be any cost savings if you dropped the amphibian part off of it and just use it as a land-based tanker?

DEAN BREACE: I think it would be minimal. The reason being is that the tanks are between the outer hull and the inner hull on one of those diagrams and there is a door

that comes down and has three large tubes that as it skims across the water that's where the water rushes in and in 14 seconds it's picked up 3,000 gallons. So to remove that or to take the tanks out, yeah, there would be some cost savings but I don't see that.

I think that to keep it multipurpose is one of its true values because in our thinking the U.S. should take a lead role in making this a global concern, because we have in Africa, in South America fires that are contributing that burn far in excess of what we have here in the United States to global warming, if you go along with all of the data that the scientists provide. And if the United States takes a lead role in firefighting here and our companies grow and have the financial support that they can then operate around the year after the season is over here, they could be deployed in South America, in Latin America, in Africa, Australia when the need arises.

I mean, when the fires burn out West they affect us here, they affect Europe. Fires in Europe or in Russia, the smoke, the net result will travel around the globe and it's no different with the conditions down in other parts of the world. There are some diagrams in there taken from space of all the fires that we'll supply you with on an annual basis and you can see where there is a heavy concentration in other countries.

So we believe that the air tanker companies that exist today, that some of them will evolve into being much bigger operators and global once they acquire this aircraft. The thinking will quickly change to, hey, I can be in 24 hours anywhere in the world with this airplane and I'm going to take a lead position in this industry.

So we feel that when you look at it that way the people that will be employed will really be employed on a twelve-month basis and around the clock. It will be a profession that you don't just come in for so many months a year.

MR.: Do you have a copy of that for all of us?

DEAN BREACE: No, because we were told -- the impression I had was that you guys were going to have so many people here lined up that you did want to be carrying a lot of stuff, so what we've done is started to put it on CD for you. But you're welcome to keep that. And we have --

MR.: Well, I like paper. I'll give you a card. Send me paper.

DEAN BREACE: We'll send you a lot of paper.

MR.: Young people like computers. I like paper

DEAN BREACE: Well, with computers you can see the videos, which I think are very good.

MR.: Okay. Well, good luck. Thank you for coming over from Moscow. That's a short flight, isn't it?

MIKHAIL KOSOVO: Yeah, very short.

MR.: I've made a trip. Well, thank you for being here.

(Cross talk.)

(End of segment.)

AL HYDE: (In progress) -- are actually here early because they wanted to sit in for part of the day here. And given the timeframe we have tomorrow morning, this is a unique opportunity to split their presentation up. And I've asked Gary Morgan, who is the regional aviation safety manager for region 9, to spend an hour with you going through some of his perspectives on this.

Tomorrow, when we finish the government meeting over at the regional office, his colleague, the regional aviation officer (inaudible) will be back talking again regional 9 issues, but that's what we're going to do for the next hour or so and we'll see how it goes.

Jim, questions?

MR.: Yeah, is our guest in the back? Is he going to make a speech to us?

AL HYDE: No. He's told me he'd let me know if he wanted -- mainly he's just sitting in and being an observer. Is that fair enough?

MR.: That's cool.

AL HYDE: Right.

MR.: Okay.

MR.: Is this an associate of yours?

MR.: If he puts fires out, he's an associate of mine. (Laughter.)

MR.: He's actually an associate of ours. He's flown his aircraft in the Superior National Forest and he's worked for us several times as far as a contractor. So we finally had a chance to meet.

AL HYDE: Well, the floor is yours if you want it. (Off mike.) Right now we'll go to the next part.

MR.: I will be glad to relinquish.

AL HYDE: Anyway, Gary, if you'll introduce yourself for the record and we'll go through and I turn it over to the next --

GARY MORGAN: Okay. My name is Gary Morgan. I'm the regional pilot and regional aviation safety manager in region 9, the eastern region. It's the Northeastern United States. We cover an area from Minnesota northeast to Maine, south from Maryland and back West to Iowa, including the southern tier of Illinois, Ohio and West Virginia.

Our region is probably the least number of flight hours and lowest fire activity for the Forest Service outside of region 10, and yet we are involved very heavily with the national firefighting program from an aviation standpoint.

My collateral duties in aviation safety during fire season is that I go out on safety technical assistance teams, I go out on fast teams, fire and aviation safety teams. I also work as an infrared pilot and I fly a B-200 King Air out of the Washington office at Boise to support infrared support for fires. And as such I have to maintain pilot currency and standards for the Forest Service.

I've been with the Forest Service now for ten years. I started off in the region 10, the Alaskan region as a forest aviation officer and pilot inspector and I became an aviation safety manager up in region 10 for three years prior to coming to the eastern region.

My experience has been limited to what's been going in primarily in Alaska and the eastern region. However, as I said, I have been involved on the fire teams and with the safety council meetings and from that standpoint I have some few observations that I could pick up and I could share with you all.

I have put aside a few notes here for you to take with you and a couple of handouts for you and I'll give these at the end.

And first of all I want to say that I really appreciate what you all are doing here. Some of the comments people have made to me and my peers have been, "Gee, Gary, we keep hearing this from you over and over, the same things for ten years. You need to cut it down to a few items." And the way I look at it is cutting it down to a few items, you aren't going to solve all the items that I've got problems with.

So the handout that I have for you are the few items.

MR.: Could we have those right now so we can look at them?

GARY MORGAN: Certainly.

MR.: Well, if you have something nice to say about us you need to get a Web page and put it on the air so we'll have some nice things as well.

GARY MORGAN: One of the items that I left out --

MR.: Now, are you here with the blessing of your superiors?

GARY MORGAN: I hope my lead-in didn't indicate that they don't know I'm here. No, Mark Bakke --

MR.: No, I mean, I think that's important. I just want to know. They're supporting your coming down here and participating and that's good. That's good.

GARY MORGAN: Yes, sir.

First off, I want to say that the Forest Service went through several years ago a review of Dupont, the success that Dupont industry had come up with and one of the greatest things that they've picked at is the core values of safety, integrity and treating others with mutual respect, and I firmly believe that we really want to maintain those core values.

The place where the Forest Service has their greatest strength in the safety area is every employee knows that they have the right, responsibility and ability to say no anytime they feel that they're in an unsafe situation. No one has ever questioned that. I've never felt that anybody has ever questioned me whenever I've rejected anything out of a concern for safety. And I applaud the Forest Service in that area. We're good at not doing something that's unsafe.

I think that where we need to start looking at it now is what can we do actively to increase safety. What kind of proactive steps can we take?

In the last few years I have seen several steps. Some of those are incorporation of the (TCAS ?) systems into our lead planes and the infrared aircraft. Last summer was the first summer that I flew infrared at night that had terrain collision avoidance system on board, which I found to be essential when flying in a smoky environment into small airports and mountainous terrain after dark. It increased the comfort level a great deal.

We need to do more of this. And many of the things that we need to do that I'm speaking about here are identified already in the aviation strategy that Tony Kearn (?) shared with you earlier. I was very excited to see that strategy come out. It identified many of the items that I have had issues with for ten years. And I hope that we don't get too far from the original intent that came out of that strategy. I think we're on a good track there.

The situation that we're in right now is that we're under the constant weather changes and weather patterns that have been with this earth for eons. And we try to be prepared for this weather situation through our NFMAS analysis, National Fire

Management Accounting System, and what we're doing is we're trying to estimate what we're going to see for the next year and be funded accordingly to meet that need.

When we get the money to meet that need, many times it is what we call the most efficient level and we're funded at 75 or 80 percent of that most efficient level. And what we are doing is we're gambling that we won't meet a need that is the 20-year average over the past and we're further gambling that we won't exceed our 20-year average or that if we do we'll have enough resources from other regions to fill in where they not be as severe. Where that hits us is in years 2000 and 2002, which we've just seen where we were at an unprecedented rate for fire activity at a national level.

In your handout I have a list of the national preparedness levels for the last 13 years and just in the month of August you'll see that in the year 2000, 2001 and 2002 we were at preparedness level 5, which is the highest level of preparedness where all resources are committed, for 68 days.

By comparison, if you go with the previous ten years we had a total of 53 days. So 68 days in the month of August over a three-year period versus 53 days in the same month for ten previous years shows a trend there.

MR.: I don't understand your chart.

GARY MORGAN: That this chart, there's four pages to it that you have. I have a total of --

MR.: You said August, right?

GARY MORGAN: I'm talking about the month of August, yes.

MR.: And you have how many days?

GARY MORGAN: If you look on the top row you'll see the years 1990, '91, '92, et cetera. If you look at the year 2000 you'll see we were at preparedness level 5 for the entire month of August during the year 2000. And if you look at the year 2001 you'll see we were at preparedness level 5 for 16 days. And again for 2002 we were at preparedness level 5 for 21 days.

And then if you look prior to that, 1999 and before, the only other time we were at preparedness level 5 to any great extent was in 1994 where we were in preparedness level 5 for the entire month.

This kind of indicates the cycle but even further August is our peak fire month. But if you look at the other months that I've included in there, June, July and September, you'll see the same indicators and trends, particularly in the year 2002. In July we were at preparedness level 5 for 31 days, for the entire month of July.

MR.: Are we talking nationwide?

GARY MORGAN: Nationwide, yes, sir.

MR.: What level are we at today?

GARY MORGAN: Today we are preparedness level 2 I believe. I'm not positive.

MR.: But who sets the preparedness level? Is that --

GARY MORGAN: I believe that's national --

MR.: Boise.

GARY MORGAN: And what that is is we identify where our priorities are for resources and how we're going to deal with other fire activities in other regions based on the preparedness levels. So if we're at preparedness level 4, correct me if I'm wrong on this, but other regions do not do prescribed burning because resources are potentially needed in other areas.

When we go to preparedness level 5, we go to a situation where all other priorities on the forests are secondary to the fire responses out in the West.

Now, my area that I'm working on is mostly on the aviation side, so I'm not a fire planner and I'd encourage you asking more questions about those to the fire planners and they can give you more accurate information. If I'm wrong, let me know.

MR.: Gary, if I could ask a question, you spurred my thought when you mentioned the MEL, the Most Efficient Level. For years that had dropped as far as firefighting capability to, as you said, 65 to 70 percent nationwide. The national fire plan was supposed to get that back up closer to 90, 95 percent and in some places it did and obviously not in others.

A question though that ties back more to the aviation side of that: Has there ever been a MEL for aviation? Did it ever drop to a certain level and through the fire plan has that been brought back up to any level or does any of that make sense?

GARY MORGAN: Aviation management, the numbers are not -- they're actually figured into the NFMAS system. The costs that they figure for NFMAS are based on the resources that they may need to address those fires or the potential for those fires. So if they feel that they need a 3,000 gallon air tanker capability on a fire for their particular type of terrain and area and their air tanker base's capability to support that resource, then that would be identified in the NFMAS in that same funding package. So it's all kind of part of the one big package.

MR.: Okay. On your first page here, when you say buildup of fuels, what's that mean? More trees?

GARY MORGAN: When we don't do prescribed burning or we subdue burns that are ignited, then that fire doesn't burn out all that under-story, the brush where you have grass comes up in the springtime, it turns dead and it drops down and then you get this dry dead grass or brushy bushes and things like that. Those are fuels. Those are the things that are going to burn in a fire. And if they aren't cleared out either mechanically or through a prescribed burn, then they just continue to grow, your spring grow period and then your fall die off period and then it grows and dies off, grows and dies off, sort of like your yard. If you don't keep trimming those bushes then they start to get bigger and bigger and before you know it you can't see the front windows of your house.

Well, these will happen in the forests and it's just a greater accumulation of fuel so that when the fire does take off you have so much more to burn that it will burn so much hotter and faster and it's more likely to get up into the tops of the trees, which is what we call a crowning fire, which can then be wind driven and move a lot faster and create much more damage and actually kill the trees, whereas many of these trees have evolved to survive --

MR.: And who in the Forest Service makes that decision to burn or not to burn or is that state by state?

GARY MORGAN: It's a regional --

MR.: Regional.

GARY MORGAN: -- program. It's the Hazardous Fuels Management Program and that is part of their budget request under WFHF.

MR.: A lot of this gets back into the issues too that have been building for the last decade or better as relates to the management of the federal lands and get into timber harvesting restrictions and all sorts of things like that that are leading to buildup of fuel and then all of the bureaucracy of hills and so forth on plans and it's a very complex issue, to say the least.

GARY MORGAN: And on top of that, that complexity, which you're absolutely right about, we have burning windows as well. The Superior National Forest experienced a blow-down that took out an area of trees about three to five miles wide and 20 miles long, creating basically a very large campfire just waiting for an ignition source. And there had been a plan to do prescribed burning for patches in that area, to be able to handle it if it should take off in a fire and we had our first successful prescription this call, yet the blow-down was three years ago. And it was mostly because of getting through the hurdles of approval and on top of that getting the right windows of moisture or dryness to be able to actually ignite those fires. Last year we were ready to go and then they had rain for three weeks.

So what we've been seeing in this situation analysis is in the increase, the rapid changes that have been going on in the industry, the changes that are happening with the urban interface as people continue to expand out into these areas and build more houses, we have to change to be able to deal with those issues. And I believe that right now the needs for change are going more rapidly than we're capable of addressing and coping with.

My primary issues of concern are in aircraft, staffing and program support and I'm not the first and I won't be the last to talk about the aircraft issue and I won't spend a whole lot of time on it. But basically the aircraft that we're using right now are either good deals that we've gotten, if they're WCF aircraft, we've had several aircraft that we've gotten from military surplus that have not really in the long run been good deals for the amount of money we've put into them for repairs and upkeep. Saver Liner was one that is probably a good example of that. We've gotten aircraft that are a point-to-point aircraft we're using for lead planes. These are aircraft that are basically designed to carry businessmen and professionals from point A to point B and any time you're traveling along that route you want to try to avoid turbulence, of course, because it's uncomfortable and it's not really healthy for the airframe over long periods, and yet we're using those at a low altitude in high turbulent environments for their service life, which is the 10,000 hour service life that's prescribed for point-to-point operations, and that service life hasn't been addressed.

The issue did come up this summer as one of our pilots was in (Baron ?) that encountered some severe turbulence and he had concerns that he had overstressed the wings on that aircraft. We found that that was not the case, that the Baron actually did withstand that, but the concerns were out there nonetheless.

One of the feelings that I have prior to coming to the Forest Service I spent three years working for the NASA flight facility at Goddard Space Flight Center. And we used off-the-shelf aircraft and we used surplus military aircraft for remote sensing and we did modify these aircraft. However, any time a whole is cut in an aircraft or any time any modification was made, we did have aeronautical engineers, we would place strain gauges on that aircraft, we would fly that aircraft through a profile that it would face in any other normal profile flight and get those readings and research them before we actually released that air-car for the project that it was going to.

The engineers that we used designed it for the project, they tested it through the project and then they released it for the project and we do job hazard analyses for those projects.

Coming to the Forest Service I don't believe that we're going to that extent. The accident rate that I saw at NASA as aviation safety manager was zero. We did not have accidents there, at least not in any of the aircraft that we had at our facility. I think that is some indicator of how successful that flight test program was.

MR.: Those are considered public use aircraft, too?

GARY MORGAN: Yes, sir. The aircraft that these involved, one was a P-3, one was a T-39 Saber Liner, an L-188 Electra, an SC-7 Skyvan and also a B-200 King Air and an H-1 helicopter.

One of the options that I'm pointing out is what I found worked for us at NASA was that the government owned the aircraft and the government decided how they were going to deal with the aircraft and how they were going to maintain and test and evaluate those aircraft. But we had a contract out, when I left it was with (Dime Corps ?), but we had contractors who did the maintenance on the aircraft and they also supplied the pilots to fly the aircraft. Those pilots flew under the standards that were established by NASA and the NASA pilots that were there would oversee the contractor who oversaw his pilots. And we all flew to the same standard to the point that many times a NASA pilot would be flying with a contractor in the other seat and sometimes that contractor was actually the pilot in command. But when it came to mission and government oversight, there was still no question that the government was still in control of that mission, of the aircraft.

In the area of staffing, my concern for staffing is that we had spoken earlier about how many of us have gotten our experience as acting in a position while it was waiting to be filled and that's a good thing that people can act in positions from time to time where they could be an assistant for career development purposes, but some critical positions such as the National Aviation Safety Manager or Regional Aviation Safety Manager or Regional Aviation Officer, these positions shouldn't be left vacant for excessive periods of time. I've seen it happen for a year or more in some cases.

And when these are vacant, the person who is acting has a certain limited ability to make decisions or commit funds to keep the program moving forward, so the program, it may stay current, it may be day-to-day working but it's not moving forward and improving, because they're not sure where this next person who comes in the job is going to want that program to go.

MR.: Gary, do you have any specific data on that? I mean, I think we've heard that from time to time anecdotally also that positions are going unfilled, but is there any kind of data you're aware of that --

GARY MORGAN: Well, I can give you some examples. The region 8, down here the Regional Aviation Safety Manager in region 8 was vacant for 18 months. The position that Tony Kern (?) is in now was vacant for 9 to 12 months. The National Aviation Operations Officer position was vacant for at least six months last year before Asher (?) Williams took over. There was an identification for a position on standardization, where the advertisement closed in January and the didn't fill it till November.

And if you go back into the personnel records at the individual regions in those positions you can see the --

MR.: Would you attribute that to you're in crisis mode fighting fires and we just need to keep people on the ground and take care of the administrative staffing when --

GARY MORGAN: I don't think that was the case.

MR.: They're doing it to save money.

GARY MORGAN: That is the perspective that I'd look at, but I wouldn't say that because I wasn't in the staff meetings that made those decisions. But they do save an awful lot of money by not filling the position.

MR.: Do they typically wind up waiting until the next fiscal year or something to fill some of those? Is there a pattern?

GARY MORGAN: I haven't seen that pattern.

On this issue of position qualification in aviation and program management, I would like to speak about a double standard that we have through fire and aviation.

Anytime a person has a position in management for fire, they are red carded. They have gone through specified training. They have had experience in fire. They are qualified in fire. They understand fire management and its behavior and they're basically experts on fire before they ever become a fire management officer or in a fire job in management.

And yet these very same fire managers many times are given collateral duties as being the forest aviation officer. And they may not have any experience with aviation. There is nothing in our regulations that require a Forest Aviation Officer to have any specific training in aviation and yet that is the person who's out there on the forest observing the flight operations, they are working with the contracting officers for the aviation contracts, they're the ones who are getting input from people in the field if they're concerned about a safety issue and they're going to have to decide how they're going to deal with that safety issue.

Granted, some of them are knowledgeable enough to come to the regional office to speak to those people with the technical skills to help them, but there are many of them who feel that, well, I can take care of this myself, I don't need to bother the regional office. And we may have a safety issue that we never find out about.

MR.: What's a red card?

GARY MORGAN: A red card is --

MR.: You got a red card, Jim?

MR.: No. Never had a red card.

GARY MORGAN: It's any time you're a firefighter you have certain job description --

MR.: Does somebody have a red card?

MR.: It's in the contract that explains all that.

MR.: He's got one.

MR.: Well, I always like to see what something looks like.

MR.: They show this up in Boise.

GARY MORGAN: If you're to be assigned to a fire assignment as an air operations branch director, you will have a red card that says that you're qualified as an air operations branch director and we have a manual for fire training that shows what courses an air operations branch director has to have completed before they can do that job.

Our region has made a supplement to the manual for Forest Aviation Officers. Our region actually requires anybody to be a Forest Aviation Officer to have a certain minimum of flight training, which is at present it's a course called interagency aviation and management safety. That course has gone away and it's being replaced with a new course that the Department of the Interior has developed. And we have yet to address how we're going to utilize that, but we are going to be doing that in the next couple of months.

Our region is very concerned with the aviation managers' qualifications, but I don't necessarily see that across the country.

MR.: How do you compare what you have in the Forest Service to what you had in NASA in terms of position qualification?

GARY MORGAN: NASA management position qualifications is nothing like the red card system. It's very much like the aviation system here. However, if you're qualified as a pilot at NASA you were designated in letter and you had your qualifications PQS, Personal Qualification Standards signed off. And I had a copy of a PQS.

MR.: It's up there in the front.

GARY MORGAN: What I attached to it, that is an example of what I would recommend for a PQS for a Forest Aviation Officer. Those courses that are identified there are all the courses that are required and listed on the Web site, on the Interagency Aviation training Web site for union aviation managers. I didn't just pull those out of here.

What I did is I took all the courses and I listed them out there on a separate PQS that can be signed off. That would be similar to a red card task sheet where once you do certain practical standards to get your red card qualification a supervisory, a mentor will sign off that red card and say this person is qualified in this.

Before I could fly a P-3 even as a copilot I had to have certain sign-offs on my PQ S standard that I had told a mentor how the hydraulic system worked or how the landing gear system worked or how the fuel system worked, so I was knowledgeable about that before I could be released in that capacity.

MR.: Here you're mentioning this concern about position qualification and verbally you said this is mostly just a region 9 issue or are you --

GARY MORGAN: No, region 9 has dealt with this issue. We've dealt with it by having an actual requirement in a supplemental manual, but I do not see it national.

MR.: You don't see the problem or you don't see the --

GARY MORGAN: I don't see the qualification standards met nationally for our aviation positions.

And I guess the way I'd like to liken it to is we could take a lead plane pilot or an infrared pilot, someone like me, who has worked on fires and that knows aviation and I would defy any person to put me in a Fire Manager Officer position with the collateral duty as Forest Aviation Officer. They'd say I have no fire background or experience, I wouldn't know what I'm doing, it would be dangerous to have me in that position and I agree it would be. But I believe that having people without adequate aviation background, overseeing the aviation program on a forest is every bit as dangerous.

If I could give one example to cover two items I've discussed, one, the Forest Aviation Officer qualification issue and also the vacancy issue, I'll talk a little bit later about communications, but one of the mishaps we've had in the last year, which is the reason for this panel, was a helicopter mishap in the southeastern United States where the helicopter had a bucket come in contact with the tail rotor and damaged the tail rotor so it crashed.

Two months earlier we had an incident with potential where a bucket actually went over the tail boom of another helicopter.

In researching that incident with potential we found that there was a lead line put on the belly-hook extending the distance from the belly to the water bucket and this gave the pilot maybe better perception when he was dipping or he could see the bucket better, the bucket's not right underneath the helicopter. Well, that was the good news. The bad news was it let that bucket go back to where the tail rotor was. And so if it's possible to contact the tail rotor, then eventually under the right circumstances it will.

We released a safety alert the following month identifying that lead line needed to be pulled off and all buckets need to be hooked to the belly hook or with a minimum 50-foot long line. And yet a month later an accident occurred in another region with that lead line where somebody didn't get the word.

And the only way I can imagine somebody not getting the word would be if there's not the person in the position to take that safety alert and pass it on and at that time the safety officer position was vacant or that the Forest Aviation Officers, if they had known about it, realized that it was important enough to get out to their heli-bases to check and see if their people doing that. And that I can't answer because I didn't look into it. I wasn't the investigator on that accident. I don't know if the Forest Aviation Officer is aware of it or not.

MR.: So your safety alerts don't go to your operational personnel?

GARY MORGAN: Safety alerts go out to the Regional Aviation Safety Managers and you'll need to ask Barb Hall who's on her mailing list for safety alerts. She's the aviation specialist in the Washington office. I know that I get them when they come through and then I distribute them and make the phone calls, particularly if it's an area -- generally when you get a safety alert, you may well, well this doesn't really apply to us. If I'm in our region without any fire operations and we don't have any air tankers working up there and there's a safety alert about a particular type of air tanker that we don't operate on, I'll put it out to everybody so they know but I'm not going to really follow it up that much.

Conversely, if we have a safety alert about a helicopter, say, a Bell 212 and we're operating a 212 up on the Superior, I feel it's my job, my duty and responsibility to get on the phone with the people to the people in Superior and say, "Did you get this safety alert, do you know what this means," not only to send it to them but make sure they understand what it means to them and what are they going to do about it.

MR.: Gary, that's a little disturbing, if I understood you right, the word didn't get out because a position was vacant, in short terms?

GARY MORGAN: All I can say is that safety alert goes to the safety officers in the regions. There was no safety officer in that region.

MR.: And in that particular case it was vacant. So does that tell me you've got a first team and no bench? There's nobody backing them up at all?

GARY MORGAN: Well, in that case the Regional Aviation Manager was handling the responsibilities for the aviation safety program as well as the regional aviation program.

MR.: That's a workload.

GARY MORGAN: It was an intense workload. The person was a first-rate individual and he can certainly handle the workload, but as you all know, understanding human factors, when you get enough balls coming over the fence you're going to drop one or two of them.

Another thing about the aviation training, and this is with the IAMs (?) program and even with interagency aviation training to an extent is much of the training is that you go to a course and you sit through the course and if you've attended the course then you pass the training. I believe that if we're going to have that kind of training we should have recurrency or we should have a kind of training where skills are demonstrated and it proves that that person is actually understood and is capable of doing the work associated with that training, rather than just sitting through a training course.

I am an instructor. I used to be an instructor in IAMs. I taught risk management and I made a point when I taught my class that I looked into the eyes of every single student and if I saw a student nodding off or sleeping that student would pass my class just as well as anybody who wasn't. And I would make a point to stand right next to that student and continue my talk to make sure that I at least captured that student as well. And it embarrassed some people maybe and maybe they didn't like me quite, but I felt it was critical that these future aviation managers understand what aviation risk management was all about.

MR.: Are you familiar with the helicopter program?

GARY MORGAN: Yes, sir.

MR.: Do you oversee that as well?

GARY MORGAN: I was a helicopter program manager when I was in region 10.

MR.: Is that a better system than there is for fixed wing?

GARY MORGAN: Are you talking about the internal fixed wing program or the fixed wing program for vendors?

MR.: Either way. Is there a better way? The helicopter folks in Washington say they had some problems -- what year was it? Some years ago. They revamped the whole system.

GARY MORGAN: Up until 1985 and that's one of the handouts that I gave you where it's the 35-year accident history and I put a checkmark on the one year for the helicopter.

MR.: I was trying to understand why do you have a different program for helicopters versus fixed wing and if your helicopter program is working better, why don't you just model the fixed wing program after that?

GARY MORGAN: Well, around 1976 we did a helicopter study because we crashed so many helicopters.

MR.: Right.

GARY MORGAN: And as a result of that study one of the findings and recommendations was that we could have managers who would oversee the actual helicopter operation. They would ensure individually one on one, a forest service manager, that that pilot understood what load calcs were, that they were not taking off over the gross. They would make sure that that pilot was maintaining a flight crew duty rest standards, that there was no violation. Basically, it was an on-scene manager for every single helicopter. These are the helicopter managers. And because of that incorporation, we believe because of that, the rates in the helicopter accidents dropped. We had less violation or deviation from standards because there was someone overseeing that. That's why the helicopter program has improved.

Now, in the fixed wing program we haven't really addressed a manager per aircraft. An air tanker doesn't have a specific manager.

MR.: Should it?

GARY MORGAN: That's a good question. It may help. The big question is what would we expect that manager to do. Would he be making sure that the air tanker is within its weight limits, that the air tanker is being maintained properly and then what are the qualifications of the people that we would have available to be those managers.

You see you're on a good start for a concept. This is how some of our safety concepts go and they don't get very far because they say, well, gee, maybe we should do this and then they start seeing how complicated it's going to be and how many more FTEs it will involve and they say, well, let's not let that go but let's just set that aside because we've got some other things we're going to worry about right now, and then ten years later it's still just a concept and it's never gone farther.

MR.: Yeah, but if you want to save money by buying old planes and using them rather than having new planes, then maybe you have to have one person per airplane like you do for helicopters to be sure it's being operated correctly.

GARY MORGAN: We do have that for the single-engine air tankers. We have a qualification called single engine air tanker manager and probably because single-engine air tankers are operating out of various airports and they're not right at a tanker base where they may be a contracting officer there to oversee it.

MR.: Well, think about that and let us know if there are other solutions. You told us here not to regard funding, so I wasn't worried about funding.

GARY MORGAN: Well, that was one of the comments that I heard two years ago at a safety council meeting where one of the people who did a study said that they were told in their study if funding is no object tell us what you want and they told them what they wanted and they said we can't afford that. It was a frustration that was voiced by this individual.

Some of the options that I had talked about in here is to identify policy that would identify specific positions that are critical to aviation and aviation safety and that those positions can't go more than a certain amount of time unfilled.

One other thing is we have a militia concept where everybody is capable of doing jobs in support of firefighting in other regions. When the fire season gets very active in the summertime we have a lot of absentee in many of the other regions and some of those jobs are filled with detailers or someone who stepped into that as an acting. During an 11-week period this summer I was on fire assignment for seven weeks and so during that seven weeks there was nobody in the aviation safety seat in the eastern region. And how do we backfill for that?

One of the recommendations that I had in that is to be looking at how much of this absentee we have during this summertime and maybe increase our FTEs on the 18 and 8 bases, where they're on for 18 pay periods and off for 8 pay periods. This doesn't necessarily have to be a large-scale thing but it's something worth looking at, find out how many summertimes we have offices that are just vacant.

MR.: Does the Forest Service bring ex-military in on details that you can do now under federal law?

GARY MORGAN: We bring ex-military and retirees in on details. Yes, we do.

MR.: Is that a possibility for backup and back and fill during the summer?

GARY MORGAN: We do that now.

MR.: You do it now.

GARY MORGAN: We many times had the National Aviation Safety Manager position during the period that it was vacant we had people filling in for it. The former region 4 Regional Aviation Officer, can you help me with his name? I can't remember.

No, this is the one long before. Anyway, he was out working on it during the summer last summer.

MR.: But that has not impacted the problem you're concerned about?

GARY MORGAN: No. The concern is that what are we doing to do with these vacancies as the fire seasons heat up and our people are out on their assignments as fire militia. A lot of people aren't there to take care of things.

In the case when I was gone I put the word out that I didn't want major projects going down that needed hazard analyses or things like that, because I wasn't going to be there to be able to do that unless we had somebody who was capable of overseeing the safety program in my absence.

One other item on the qualification and training is we're at a good start with the interagency aviation training program. The Department of the Interior, particularly Chris Damsguard (ph) is the training person in charge of that, has worked very hard to work on this IAT. It was initially called Training 2000 and it was an incentive to get employees qualified in aviation standards.

The present Regional Aviation Officer in region 5 had worked very heavily on it, Dennis Hulvert (ph), on the aviation Training 2000 program and this is where it has evolved to.

The Interior Departments require these qualifications for the aviation positions. They have to have those qualifications to do those jobs. It's in their policies. We have yet to really adopt it as policy. We have them out there but it's not policy. Part of the reason is that a lot of those training courses, and you see some of the training courses on that sheet that I handed you, the courses have not been completely developed yet. We have contractors working on them. There's a lot of them that are out there. They're Web-based. Some of them are taught with instructors but some of them have not yet been completed. And so we're trying to get those completed and that's why we haven't probably required it as policy yet. But this is one of the solutions to our aviation expertise and management is to get these people trained and to have the training required before they can have the job. I'm not saying before they can be in the job. A lot of people come into this job and then start getting trained to do it and that's just like not having somebody in the job.

MR.: Is this the academy?

GARY MORGAN: It's not the academy, no, sir. This is a separate --

MR.: What do you think of the academy? Have you been to the academy?

GARY MORGAN: I've not been to it so I really can't give you an opinion.

MR.: But there's no requirement you go. Who goes to it?

GARY MORGAN: I know lead plane pilots go to it. I don't know what they use for their requirement.

MR.: Tanker pilots go.

GARY MORGAN: Tanker pilots. Mostly it's direct attack type of firefighting people and they're learning -- it's my understanding that they're learning coordination over the fire, that sort of thing. They understand what each person's role is, what they're doing, how to keep each other organized.

And the program standards, our inspection program for aircraft, and you're going to hear this many times where they say we're not responsible for airworthiness and what we do when we inspect aircraft is we inspect them to the specifications that are in the contract. So that means when an inspector is looking at an aircraft they're seeing that the aircraft has the proper radios on board, that it has the proper gating system, that it meets the specifications all outlined in the contract, four-point shoulder harnesses on the front seatbelts, that sort of thing.

As an aircraft inspector, I've looked at the maintenance side of it where I looked at the records of the aircraft to find out if everything was current, if the ADs were in compliance, yet I'm not an A&P. I have not had any formal training for maintenance program management and yet I was qualified to sign off aircraft and issue a card that shows that they're approved for carrying Forest Service people.

The Forest Service people that are out there in the field will come up to me and they'll say, if we see this card in an aircraft we automatically assume that this aircraft is safe to fly in. And I'd try to tell my people that the enforcer's inspection is no guarantee of safety for that airplane. The Forest Service's policy is that the vendors are responsible for the airworthiness and the FAA is responsible for the oversight for airworthiness. And there's a question in my mind as to how far the FAA is going to support this in light of it being a public use aircraft.

In our region right --

(Audio break, Atlanta III, side A to side B)

GARY MORGAN: -- (in progress) -- card from it. We decided nobody was going to inspect the aircraft in region 9 unless they held at least an A&P certificate. This is not a national standard by the way; this is just a regional standard.

MR.: How does it work at NASA? Who's responsible for airworthiness under the situation at Wallace (?) Island?

GARY MORGAN: At the Wallace Flight Facility. It was DynCorp contractor would maintain the aircraft and we had government quality assurance maintenance specialists, one that worked down in maintenance control and one that also worked upstairs in the upstairs office, who ensured that the maintenance records were maintained accordingly. The maintenance standard that we used there were the military standards, if it was military aircraft.

MR.: So NASA was responsible?

GARY MORGAN: Yes. They were government aircraft. They were owned by --

MR.: And they had more responsibility than the Forest Service does on these government public-use aircraft?

GARY MORGAN: Public-use aircraft but not government. The aircraft we're talking about that the Forest Service deals with are vendors' aircraft or private industries' aircraft.

MR.: Some of them.

GARY MORGAN: Some of them.

Now, the WCF aircraft that the Forest Service owns we do maintain them ourselves. We have maintenance inspectors in the regions that are responsible for this. And they'll usually use a contractor to --

MR.: But the Forest Service doesn't do any oversight?

GARY MORGAN: On the WCF aircraft they do.

MR.: No, but on the contractor aircraft?

GARY MORGAN: Not for airworthiness.

MR.: And they're looking to the FAA to do it?

GARY MORGAN: Yes, sir.

MR.: And everybody knows the FAA doesn't do it.

GARY MORGAN: I don't know that that's true, but --

MR.: Well, that's what they told us yesterday. At least that's what I heard.

GARY MORGAN: The FAA says that their hands off on public use. That's my understanding of their policy on that.

MR.: It's low priority they say. Not a high priority I think is the way he said it.

MR.: Well put.

GARY MORGAN: Those should cover the issues that I gave you in the handout. One thing that I would like to leave you with on the subject of core values again I wan to come back to it because I personally do accept aviation safety as my own core value.

There are very few of us who have been in aviation for a living that haven't lost people who are close to us in accidents and I've been affected by that, as many of you have. And that is why I have been an aviation safety manager for 13 years now. I believe in it deeply. But I believe that some people who maybe have not been affected quite as much take it more as a level of political correctness than really truly believe that this is what is most important thing to them. I'm fine with doing away or saying no to an unsafe act. I think it's great that we support our people on that, but I think that when we identify safety issues and actions not taken because it's going to possibly upset someone else or impact our budget, we need to find ways that we can make this happen, that we can make it happen without impacting the budget but not just walk away from the issue.

I will use one final example that happened in our region. We had a reconnaissance pilot who I went up to card two years ago. He was 75-years old and he was flying single pilot with a Forest Service employee on board as an observer for fire reconnaissance. When I did his flight inspection, he didn't have his medical card with him and so I made sure that he got me a copy of his medical. That was very important to me at his age.

After thinking about it from a risk management standpoint and understanding the FAA's policies on age and pilots, I had some discussions with the Forest Aviation Officer and express my discomfort with that pilot flying in a single pilot operation with an observer on board who didn't know how to fly the aircraft on the grounds of high risk for incapacitation, in-flight incapacitation.

I was told that they wanted to use them, that he was a great guy, that they really liked him, he got along well with everybody and he had not given them any problems in the past and they didn't see why this should be a problem.

I'm still awaiting for the final outcome of the autopsy, but they did find him in the wreckage of an aircraft about two months ago working for the state of Michigan. We had not carded him in the previous year. I kind of just dragged my feet on it, but I know that there's a lot of worry about what was going to happen if we didn't card this person based on his age.

And I think that the FAA has had no problems in identifying age as an issue with certain pilots. And I have no problems with a pilot flying over a certain age as long as certain safety precautions have been taken, whether it's pinch-hitter training for the observer or a copilot on board the aircraft, but some of our people will tend to take this pressure to take something that the safety people have identified as being a higher risk than we should be normally accepting.

And that's the final point on that.

MR.: And there again you're back to standards. There is no standard for age or anything else in this sort of case to back you up, correct?

GARY MORGAN: That's correct.

This report that I handed out was a report that the Aviation Safety Council did in 1996 when we reviewed SAFECOMs and accident reports over a number of years going back to 1961. We were trying to identify the common threads in here and you'll see some of these things and you'll find out that in aviation accidents we don't have new accidents. The same things keep happening time and again.

We also find that the number one contributing factor in our Forest Service aviation accidents has been deviations from policy, whether intentional or unintentional, but policies that are in place for some we're still not following and those were contributing factors in some of these -- in the majority of them.

MR.: Is that addressed with the helicopters?

GARY MORGAN: Yes, sir.

MR.: If we can do it with helicopters and fix our problems, why can't we do with fixed wing?

GARY MORGAN: You mean, deviations from standards?

MR.: Yeah, is that a problem with the helicopters?

GARY MORGAN: That's a problem across the board. We have the same deviations today. I mean, as you have turnover, deviations from standards is a human factor issue that's going to come with turnover.

MR.: It starts at the top though.

GARY MORGAN: Well, let me relate one more story. This is an accident investigation I was on. It was my very first one in the Forest Service. A particular pilot showed up on a fire. First of all, they asked to card this pilot down in California. The

California helicopter inspector said I'm not going to card him. We have an agreement. This guy is a troublemaker. I don't want my name on his card.

So the pilot was needed for fires. There's an old saying, when the going gets bad, the real bad get going. So they brought him up to Boise and they had someone else inspect him who didn't know who this person was. The person gave him a check ride, issued him a card, sent him off to a fire. He showed up on the fire and within 24 hours that fire did not want him on their fire, they released him. In other words, he's a problem we don't want to deal with, we'll release him, he can go be someone else's problem.

He showed up on another fire and was exhibiting just abrasive attitude problems, severe attitude problems, non-authority and he was doing some maintenance on his aircraft, the maintenance was not reported to the regional maintenance officer. On the second day he was on the fire he crashed his aircraft. He lost power and put it down.

In the accident investigation in my interview with him I had over a thousand hours of flying Hueys and he had 75 hours of flying Hueys and he was trying to convince me that he had a hydraulic failure so he auto-rotated the helicopter. And my experience in Hueys show that you can't auto-rotate an H1 with a hydraulic failure. You can get it down but you're not going to auto-rotate.

I looked into the accident more and found out that he had been doing unauthorized modifications to the aircraft fuel control because of power problems he was having and then when he had power problems again in flight he went to manual governor but the rotor RPM had gotten so low that he couldn't recover the rotor RPM and put it into the ground.

The point was the people who had managed this person, this person was allowed to get so far with attitude problems because people were afraid to face what was going to happen if they rejected him from a fire. It's almost like certain vendors feel they have a right to work for the government and that right shouldn't be violated. And I think that we forget sometimes who the customer is.

MR.: Gary, can you comment on how healthy you think the SAFECOM program might be in the different communities? It seems like there's sort of uneven contributions to that whole reporting mechanism that we see lead plane numbers and helicopter numbers seemingly improving every year and the heavy air tankers seem to not be and I'm curious about is that an accurate representation, and if so what may be the causes.

GARY MORGAN: What you're asking is really kind of complex, and I will address it though. The SAFECOM program is as effective as the knowledge and awareness of the people that are involved with it. If people think that SAFECOMs can help really enhance the safety of the program they use it. And if people think that we're going to find out and ask them why they didn't submit a SAFECOM if there's an issue, they're going to use it.

I have found that when I really emphasized the value of it and really give kudos to people who get involved with it and really push it in my region, I get more SAFECOMs. If I don't push for a year I see them start to drop off and I don't think it's a safety issue.

Initially when our SAFECOMs started to rise I saw some management -- these weren't aviation management; these are the line management -- start saying why are we having so many problems here and they were getting worried about it and what I was trying to tell them is this is not a worrisome thing; this is something that's a good thing.

We've always had the problems; now we're starting to learn about it. They're starting to communicate with us.

The disturbing side of this is that I have gone out many times on reviews and I have had a person walk up to me and say, this guy has been a problem, he's done this and this, we had this, he left a tool in an aircraft, they went flying with it, tool control issues, wore a hole in the float. And I said went did that happen and where's the SAFECOM on it. And they say, well, we didn't do it; it was a minor thing.

A lot of people still don't understand that some of the minor issues when taken in volume can reveal a significant issue.

In the case of I looked into some of the Baron maintenance issues when I saw these Barons having some problems and I just as a safety manager I wanted to have some input to the safety council on it and I made some calls to some of the Baron pilots. And I heard that there's more fuel problems with several Barons. And I called the pilot and I said, well, I couldn't find that in the SAFECOM system, when did you write that. And he said, well, I didn't do a SAFECOM on that. I said, well, why didn't you do it. And he said, I didn't think anything was going to happen, I didn't think it would do any good.

People will not submit SAFECOMs if they think that it's going to get someone in trouble, if they think that the person who's going to deal with it is not going to deal with it well and create embarrassment or more work for them or if they think it's so minor that it's not worth sitting down and typing out a piece of paper that they don't have time to do anyway.

So you say is it effective. For the people that participate in it it's very effective. We get very good information from it. Is it complete, are we getting 100 percent participation? Absolutely not. And I think a lot of that is awareness and education and people understanding the value of it.

MR.: Could part of that be tied back into some recurrent training? I mean, if I go to training once every three or four years and part of my training is to sift through all these SAFECOMs that somebody else has thought through, then I think that would reinforce in my mind the value of filling these out in the future when I'm in the field.

Conversely, if you don't have opportunities to train people and point out what you've learned from SAFECOMs and I would think it would die on the vine.

GARY MORGAN: Absolutely. That's part of the problem with the SAFECOM reporting systems. A lot of the Forest Aviation Officers and other aviation managers who haven't had that much aviation exposure don't really realize how a minor issue could be significant.

One of the things that I wanted to point out, we used to have a magazine here for several years called (Bare Airs ?), an aviation safety magazine. This is just an example of where the support was in aviation safety for it.

There's an article in here, which answers your question. I wrote this article when I started dealing with the SAFECOM issues in region 10. It's called "Why We Fail to Communicate" and I hope you all get a chance to look at it because it does show a communication problem that hasn't really changed.

One of the issues that I wanted to bring up and I was not going to, but since I've got some extra time today I do want to bring up, it's an example and it's only to be used as an example, but this is how we funded the aviation safety magazine and the circulation and the type of people who would pick this up and read it, the people who are going to learn from it and maybe submit a SAFECOM later on, it doesn't really make you want to pick it up and look at it. I don't know that it got out very much. It was done on Microsoft Word software from my office. Trying to get people to make input to the magazine was a lot of work. It ended up becoming a magazine with nothing but my articles in it and I decided that wasn't effective, I didn't want to do that, and so we haven't put one out for several years.

This is the magazine that we use for fire management with a $75,000 a year budget for this magazine. And I just illustrate the difference in where our priorities are. This is what the Army has on a monthly aviation safety magazine and not only does the Army distribute this throughout the Army but I'm on their mailing list and there's a lot of people on their mailing list. The U.S. Navy has "Approach" Magazine and I used to read "Approach" Magazine from the first week that I was in flight training. And the reason that I read "Approach" as a pilot was because I wanted to see what other pilots were getting themselves into and how they got out of it, because that's what that magazine was all about, because I thought, gee, someday this might happen to me and it sure would be nice to know what they did, how did they think, and there's an article in here dealing with how a pilot handled an emergency by the book and survived.

And that's the kind of thing that I think saves the lives of people, but the information is not going to do any good until people pick it up and read it, and I don't think that "Bare Air" was effective in that area.

MR.: And "Bare Air" was just for your region?

GARY MORGAN: No, "Bare Air" was a national magazine.

MR.: Really?

GARY MORGAN: It was started about -- it was in publication about nine years ago. Bill Bolger did it for region 6 for a while, then I picked it up when I came to region 9 and did it for about three years. And I just stopped getting input from people and had no material to put into it.

MR.: Was that lack of interest or does it come down again to workload, people don't have time to do these things?

GARY MORGAN: Probably both. Again, I was writing articles because I felt very passionate about these things. You get some people who do feel passionate about it and you get an article from them and it would be nice to get those things out to the public to read.

AL HYDE: Any other questions or comments? Thank you, sir. We'll take a 15-minute break here and see where we're at.

GARY MORGAN: Okay, thanks.

MR.: I still don't understand why they can't take the helicopter model and use it in fixed wing.

(End of segment.)

ED COFFMAN: I'm Ed Coffman and I have a company called Orion Aviation and we provide air attack platforms to the Forest Service (inaudible).

MR.: Where is Orion Aviation?

ED COFFMAN: We're based in Siler City, North Carolina but we have one ship up in Superior that's under contract up there and we have (inaudible) up there and have another (inaudible). So we do air attack work.

One thing when Gary was talking that he didn't mention is they have an air awards program, which seems that it does give you some kudos for if you say you've been too busy or sometimes a pilot gets worn out and they have to quit and they discover they can't fly today. I've seen the air awards magazine, hey, that was a good call, you guys were worn out and that was a good thing.

And actually our company got an air award or our pilot and our air attack officer were given one last year when they had a helicopter that had a mechanical in the back country and they told him exactly where he could set his aircraft down and he landed it in the mud instead of in the lake.

MR.: These air awards, is that a -- did you -- I missed the uptake on that.

ED COFFMAN: It's a magazine put out by I believe the Forest Service.

MR.: Nationwide is that?

ED COFFMAN: Nationwide.

MR.: And so the Boise people are putting this together and how would they have heard about this incident? Is that through a SAFECOM?

ED COFFMAN: Well, through a SAFECOM or probably another -- just an individual who observed something like this can submit someone and recommend them for an air award.

MR.: Well, thanks. I'm glad you told us that.

MR.: Is this the incident where he had to set it in the mud and it went all the way to the tank?

ED COFFMAN: Yeah. It was very interesting when they had to remove it from the mud. (Laughter.)

MR.: That was in the packet we got.

MR.: Right.

AL HYDE: Could I ask a question before I let you get started, sir?

MR.: No. The panel should go first. Go ahead.

AL HYDE: The impact of the long fire year, do you see any -- the fact that the fire year was longer, that more hours were being flown, some statements have been made that with these further, further and these longer fire years there's more fatigue, there's more stress factor, there's more potential for incidents. Are you seeing any of that, any sense of forbidding about that?

ED COFFMAN: It could be, but I think that's a phenomenon you see everywhere. It's like in a tourist town; you can't wait for the tourists to come after a long winter but once you're halfway through the tourist season you can't wait for them to leave. I mean, a fire season is like that, too. Halfway through it you've been working hard. It's hard work.

MR.: Well, I guess the first question I have is in your opinion is it broken or is it not broken? Is there anything to fix? Do you need a blue ribbon panel? Do you need anybody giving suggestions or is everything fine the way it is?

ED COFFMAN: Well, if you keep doing things the way you've been doing them you're going to keep getting the same results. I'm sure you've heard that. Are you getting the results you want?

I assume part of the reason this panel is here is because everybody in the United States saw the wings come off that airplane on television. If that thing hadn't been on television, we might not all be here.

That doesn't mean it shouldn't any difference, but that's just what my thoughts are.

I don't know much -- I'm not -- you know, I know nothing about heavy tankers. I couldn't talk about those, although I can tell you that the FAA, all of these operators are certified under Part 91 and 137 or 135. And we do see our (FISDO ?) inspectors quite regularly.

Now, if we have an incident when we're under government contract, they probably have little or no enforcement. Remedies left to them, if it's a public use aircraft at retirement, when the aircraft are back home they're inspected, you know, we get inspected quite regularly for records and all that stuff.

MR.: You use your aircraft for things other than public use then, right?

ED COFFMAN: Well, pretty much. Well, no, everybody that -- all the vendors, all your private contractors have to be certified under Part 137 or Part 135 before they can even apply to become a contractor.

MR.: I understand.

ED COFFMAN: And they have to maintain their aircraft to those standards throughout the entire time they have their certificate.

MR.: Yeah, I understand, but your aircraft --

ED COFFMAN: Oh, unlike an air tanker, yes.

MR.: Yeah, you use them for other things.

ED COFFMAN: We can. We don't use them very much. In the wintertime we do heavy maintenance and try and prepare them so they won't break when the fire season gets here.

MR.: They're primarily for firework?

ED COFFMAN: Primarily for firework, yeah.

MR.: Most of the work that you do, is it in this part of the nation or do you go out West?

ED COFFMAN: We go out West, we go all over the continental United States. And we had actually this year in region 8 was not a very busy year, we did very little work here, but we were in Colorado and New Mexico, Utah, Washington, Nevada, the same place everybody else was.

MR.: And pretty much doing air attack work then?

ED COFFMAN: Yeah. That's all we were doing.

MR.: What type of aircraft?

ED COFFMAN: These are Skymaster Cessna 337s. Are you familiar with those?

MR.: Yeah, push or pull.

ED COFFMAN: They've got a push/pull.

MR.: Oh yeah, front and back.

ED COFFMAN: Yeah, front and back.

MR.: Now, are they designed for the mission you're flying?

ED COFFMAN: We feel they were. I mean, the Air Force used them for forward air control aircraft just like the OB-10s and stuff during the Vietnam War.

MR.: That's when I was in one.

ED COFFMAN: Yeah, the wings set back, you've got lots of windows and glass and I think it's a pretty good platform. The only better thing is it could be air conditioned and it could be a little faster.

MR.: How many airframe hours do you have on your --

ED COFFMAN: Every one of them is under 3,000 hours. It's pretty easy to find 1,500 hour airframes in those airframes, because the people that own them don't fly them very much. They're not brand new. The last one was made in 1980 but they're still reasonably low time airframes. And they have -- you know, they'll have --

MR.: Now, do they drop retardant or do they just --

ED COFFMAN: No, no. They're just basically air traffic control over the fire.

MR.: Air traffic control.

ED COFFMAN: They sit up at the highest altitudes.

MR.: The platform thing, yeah, okay.

ED COFFMAN: Yes, the air attack platform.

MR.: Now, is there the agriculture person is in there with you -- I mean, the Forest Service person is in that plane?

ED COFFMAN: Yes. The air attack platform is flown by the vendor pilot and then the government personnel does the actual firework and they have to have a red card, et cetera.

MR.: Is all the work you do through the federal system? Do you do any through state?

ED COFFMAN: I've done a little bit for the state of Minnesota. The state of North Carolina they have 40 airplanes and helicopters of their own, so they don't use any private contractors.

MR.: Do you use that academy?

ED COFFMAN: No, because the people that need to know how to fight the fire is the other guy, the air tactical group supervisor and they're carded and all that and we haven't -- I don't think they have enough slots at the academy to be into start accepting air attack pilots. We'd love to send some guys, but I don't think, you know, it's sort of hard to get in there.

MR.: Does your airplane have GPS?

ED COFFMAN: Yes.

MR.: So do you have experience -- I'm sorry for not remembering how you introduced yourself. You're --

ED COFFMAN: I'm Orion Aviation. My name is Ed, Ed Coffman and we do air route supply attack --

MR.: Are you a pilot yourself or --

ED COFFMAN: Yes.

MR.: Okay, thanks. Is it reasonable to expect, you know, we've heard some discussion about trying to record observations in the middle of a fire. And you've got two people up there flying cab, directing heavy air tankers in, doing different sorts of things. Is there time, is it possible to do some recording of --

ED COFFMAN: Well, I mean the ATGS has a pad on his knee and he's logging aircraft coming into the fire, leaving the fire. He has to know the names of the people he's working with, frequencies, et cetera, et cetera. More information than that --

MR.: I guess what I'm interested in is from where you're sitting up there could that ATGS representative score that retardant went right where I asked, that was an A and it was 2,500 gallons and three different drops?

ED COFFMAN: Well, they do put the number -- the do write down the number of drops. That's recorded. And they don't really score them. They might talk to the pilot on the radio and say, hey, that's perfect or you need to be a wing length to the left or something.

MR.: But it sounds like it's score-able.

ED COFFMAN: Oh, yeah.

MR.: I mean, if you wanted to, that's easy to see from there that that --

ED COFFMAN: Yeah, yeah. As long as you just had a standardized system so everybody knew what was an A and what was a B and what was a C.

MR.: How many levels of grades could I consistently score? I mean, I can tell if it's there where I want it and I can tell it's not where I want it.

ED COFFMAN: I think that's a question you should ask a lead plane pilot, because they score these things too. He can give you more information on that than I can. I would say, you know, A through D would be -- A through F would be fine, you know, F meaning --

MR.: We know what that means.

ED COFFMAN: But I wouldn't want -- I don't think it needs to be much more complex than that.

MR.: No, and I don't want to take up a lot of time either but it seems like it's feasible.

MR.: Ed, chances are we're not going to get a chance to get out into the environment and see this thing, you know, firefighting firsthand for a variety of reasons.

Can you kind of describe from the seat that you occupy in the air attack airplane the environment in terms of turbulence, in terms of confusion factor, if you will, and communications and just give us characterizations so we try to understand that environment a little better?

ED COFFMAN: Okay. When you first get out there, everything is kind of -- it takes an hour or two for things to settle down. It's just like anything. When all the emergency vehicles get there at once you've got to get your systems in, you've got to get your frequencies set up, everything has to start working and it may take a day sometimes on a large fire for all that to --

MR.: A day?

ED COFFMAN: Sometimes. Sometimes the frequencies are snafu'd, you've got another fire 20 miles away and those aircraft aren't aware that there's a TFR over this fire or what. Sometimes it takes a little time. But once it gets rolling it stays pretty smooth.

MR.: Back up for me.

ED COFFMAN: The systems are in place.

MR.: Back up for me. Before you take off, you don't have all those frequencies?

ED COFFMAN: Yeah, you do, you do.

MR.: Okay.

ED COFFMAN: You do. But like I said, there could be frequency conflicts with someplace else, just things happen. But you go out to the fire, you find the fire, you talk to the man on the ground. Together they sort of sum up the situation and then decide what resources, aerial resources they're going to need where they need tankers or helicopters or seats. They call back to dispatch, they say, okay, what's available, this is what we want, can we have it, and then they have to sort of powwow around and decide what the priorities are on that, who gets to go where or whether they have that and then once that happens then the resources are dispatched to the fire and the decision process is ongoing whether they need to continue to return to the fire or whether what they did was sufficient to hold the fire while the men on the ground finish up their job.

It's not that complicated, but sometimes it takes a while just to make sure everything happens right and everybody knows their job.

MR.: You actually do this?

ED COFFMAN: Yeah.

MR.: How many hours would you say you've been over fires doing this?

ED COFFMAN: Oh, probably 300 or 400 hours.

MR.: Just your guest guesstimate, what usually is the most effective? Is it helicopter, the smaller aircraft, large tankers, when --

ED COFFMAN: It depends on the fire and the terrain.

MR.: Do you think you need all three tools over most fires you've seen or do you --

ED COFFMAN: If I had to rank the effectiveness of the equipment --

MR.: I think they're out of the room. Forget that there's a microphone there. Just go right ahead.

ED COFFMAN: One of the most amazing tools that I've ever seen are those heavy type 1 helicopters with the snorkels, if they've got a water source nearby. I know they're extremely expensive but they can come and go really quick.

And then after that the heavy tankers do a great job of laying retardant, if that's what you need long-term, retardant, and I think you need all the tools in your toolbox that you can get. I don't think there's one situation where one tool is going to fix all your stuff. I think you've got a combination of the helicopters, the heavy tankers and the big helicopters all work well. They all work well. I couldn't -- that's not -- again, I'm not the guy you need to ask that question to.

MR.: No, you've observed it for several hundred hours.

ED COFFMAN: But, I mean, it's just really fun to watch those big type 1s work, helicopters work.

MR.: Ed, can I follow-up a question that I think Bill was getting at. You've been over fires 400 hours, 300, 400 hours. Once in severe turbulence, a hundred times in severe turbulence?

ED COFFMAN: Oh, I'm sorry, the turbulence thing.

MR.: What do you think?

ED COFFMAN: At our altitudes we stay pretty much out of the fire turbulence. We don't get down there into the -- you know, we're flying 1,500 feet above the fire when the other guys are getting down there in the severe turbulence. Occasionally we get in turbulence because of the terrain. You have turbulence in the mountains. It's a windy day and you get bounced around or something. But turbulence is not really a big --

doesn't have a big effect on our operation. If it gets that turbulent the operation is usually shut down.

MR.: And that happens once every hundred fires, every ten fires you get enough turbulence to let's just knock this off for a while, it's too hot out there, it's just too breezy?

ED COFFMAN: Well, there have been I think two days and probably I've been doing this like four years now, but I think there have been two days in four years where all aviation operations were shut down because the wind was too much. And I think there are parameters on that, 30 mile an hour wind, 35 or 50, I don't know what it is, but you have no business flying in some of this terrain if it gets too windy.

MR.: But you also hear other pilots report moderate turbulence or severe turbulence to flight service or other sorts. I mean, it's just not a regular occurrence. I mean, I flew in Colorado for ten or 12 years and it doesn't happen all that often, but you do hear it being reported and (inaudible) being put out.

ED COFFMAN: Well, I mean, as Gary said, there's no stigma attached to saying, hey, this is getting too dangerous, we need to shut it down. That happens a lot and people do that.

MR.: Can I shift the question a little bit, Ed, and I'm sure you're out there trying your hardest to not run into anybody, so you've got a lot of experience with this. I'm thinking I'm in a big air tanker and I've got limited visibility and everything else, I could be in a single engine air tanker and my guess is visibility is a lot easier for me to see people but harder for those people to see me. We're trying to figure out, you know, if you had to estimate, are two single-engine air tankers sort of the easiest solution where you'd have one over the fire and one back home getting some more retardant and then they just switch and they switch out?

ED COFFMAN: When a fire is being controlled by an air tactical group specialist over the fire, part of their job is to make sure -- and, you know, they work in conjunction with the lead plane if there is one or the helicopter coordinator if there is one -- is to keep the traffic separated. That's one of their main jobs. So you'll hold a tanker out here while one comes in and does his job and then while he goes to load and return the other one will come in. And they also should be at separate altitudes as well as having horizontal separation and when the system -- when you follow the procedures as they're written it works pretty good.

MR.: Well, but accidents usually happen when people don't follow procedures and then you get too many things going on or bad smoke, and I'm just thinking, you know, in my world it would be nicer if we had fewer airplanes all looking at the same thing on the ground and running into each other.

So I almost see an advantage of single-engine air tankers that they wouldn't be over the fire getting in everybody's way all the time. And that's not a disadvantage.

ED COFFMAN: Well, you know, the seats work better in certain fires in certain terrain and they can get in certain places where you can't bring in a 40,000 pound airplane. But they also don't carry 8,000 gallons of retardant. They carry 600 or 800 gallons.

Like I said, you've got a big toolbox there and you need to have all the tools in the box in case you need them.

MR.: Over those four years you've been working, Ed, have you seen any change in what I will have to call the aggressiveness of tanker pilots? I mean, we've seen some pretty eye-watering pictures this year where tankers are down below the tree level or they're banking very high bank levels, throwing retardant against the side of a hill and things like that. And we're hearing anecdotal stuff that says there's such a can-do attitude, that people are kind of pushing the limit. Does that constitute violating procedures or is that just considered aggressive or just getting the job done or can you give us any kind of a idea about it firsthand?

ED COFFMAN: I haven't noticed any change, but you've got an inherently risky job so you're going to -- it's not going to attract everybody, flying tankers. I don't fly tankers. So you've got to have a certain kind of person that enjoys that and does that, he's not going to be your most cautious guy but most everyone I know that does that takes their job real seriously and they're extremely professional and I don't think they take any chances, knowingly take any chances.

MR.: So you haven't seen any trend that says the guys are pushing harder now for any reason?

ED COFFMAN: I haven't, no. You know, you'll probably hear a lot different when you get to Albuquerque and California and all those places. There will probably be a lot more people there, too.

MR.: Because you tend to work back here?

ED COFFMAN: No, I've just seen -- no, we work out there. I'm just saying you've got a lot more people interested in forests and fire and aviation out West than you do back here in this neck of the woods. As you noticed, I thought there would be a lot more people here, to tell you the truth.

AL HYDE: (Off mike.)

MR.: Actually, there were two or three folks that were going to come and decided they wanted to go out West anyway, even people from this area.

But maybe as a follow type question, since tomorrow we're going to spend some time with region 8, region 9 folks, what's your sense of the difference between being out

West or (inaudible) and operations here in the East and South in terms of aviation strategy and aviation tactics, if it's fair to ask that question?

ED COFFMAN: Well, you know, in every kind of terrain you fight fire with different tools. I don't know that they use a lot of plows and stuff in the mountains where you can't get a bulldozer up the side of some of those mountains out West and here you can fight them with plows.

But as far as tactics, I think in the time I've been working I have noticed that there's a whole lot of exchange going on between regions and it seems to have increased in the last few years, so people are learning tactics for all types of fuel types whereas before people would come over here and they wouldn't be familiar with these fuel types and the converse was true. People from here may have gone out west and people didn't give them much respect because they thought they didn't know how to fight the fire out there.

MR.: Ed, you come from North Carolina and you indicated that the state had a number of planes, one of the big Canadian planes --

ED COFFMAN: Yeah, they have a 215 and I think an 8-C (?).

MR.: -- and various other things. Do you have any firsthand knowledge as to state operations versus federal operations? We're primarily hearing about the federal side of everything, and to a certain degree in a lot of ways the states fit into that federal system. But I'm not sure about the aviation side of it, if there's any crossover at all in that regard. But do you have any knowledge of anything that we ought to be concerning ourselves with as relates to the state operations?

ED COFFMAN: Well, I actually started years ago. I flew recon and air attack for the state of North Carolina and I flew as a temporary pilot for several years. But it's sometimes -- and you even have this on federal fires, sometimes people on the fire can't decide who the boss is and you need to know who the boss is. (Laughter.) And that's kind of a problem occasionally.

And that sometimes happens when a fire is between the state or close to the state or close to the U.S., not somebody in the state. A lot of state agencies and federal agencies, the radios aren't compatible, so it's not easy to do the tactical stuff. You can talk on the aircraft radios to the pilots but when it comes to doing the tactical stuff the people on the ground there may be only one person on the ground that has a compatible radio with the federal or vice versa or maybe you're the only one federal plane that has a low band radio that can talk to the state and they have to go back through the dispatch and that takes a lot of time.

MR.: I guess state, the state planes, either there are standard or they're not standard but they probably fall under the same thing as the federal --

ED COFFMAN: Public use, et cetera.

MR.: Yeah.

ED COFFMAN: Well, but I think just like the federal government everyone is trying to upgrade their equipment to having it being standard airworthiness certificates and comply with all the duty and rest requirements that the FAA requires. There are not many cowboy public use operations out there that I know of anymore, whereas they used to be sort of like we just get here and fly and let's have a beer on the way.

MR.: Like we used to drive down south.

AL HYDE: Anything else, then?

MR.: Well, we appreciate your willingness to come up here and chat with us.

ED COFFMAN: Thank you. Oh, there was one other thing. I was just thinking about this. On the contracting end you can't put everything in a contract that you need or you want, but at the same time sometimes a vendor may go above and beyond the contract with his safety or his equipment or something but then the contracting officers oftentimes can't take that into consideration because it wasn't a requirement and they wind up going with a lower price bid, when for safety reasons or some other reason it may have been more -- they may have wanted to go with the other vendor. They all say best value but sometimes that seems to be a problem.

MR.: What safety things are not in the contract? Can you point to anything specific?

ED COFFMAN: Well, there's training and crew cockpit resource management programs and all these other things that they're sort of left up to the contractor to implement if he chooses. They're not a requirement, they're not FAA mandate or a contract mandate. But some people do it just for safety.

MR.: Is there a lot of competition for the type of contract you're bidding for?

ED COFFMAN: I feel that there is. (Laughter.) I feel that there is, yes. Now, the contracting officers may feel like there's not enough competition.

MR.: Your contracts, like everyone else, are one year with, what, a two-year option?

ED COFFMAN: Yeah, well basically we have one of those contracts and then the other stuff we're basically all the other -- most of the aircraft we're just calling --

[END OF ATLANTA SERIES.]