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CHAIRPERSON: Good morning. General, do you confirm that you are still under oath?

BRIG GEN BAYNE: I do.

CHAIRPERSON: Thank you. Dr Madima.

5 DR MADIMA: Thank you Chairman. Thank you. We are now ready with the re-examination. We have just a few questions to ask the general.

**RE-EXAMINATION:**

10 DR MADIMA: General Bayne, sometimes in the past two days during your testimony you made mention of paper aircraft, would you please ...

CHAIRPERSON: I'm sorry Dr Madima, we are struggling to hear you, you are talking too soft.

15 DR MADIMA: I beg your pardon Chairperson. I was saying that ... Thank you. Chairperson I was saying that in the past two days you made mention of paper aircraft. Would you be kind enough to explain to the Commission what that means or what that entails?

20 BRIG GEN BAYNE: Chair, and of the aircraft that was on the shortlist for the ALFA, the advanced light fighter aircraft, was the Daimler Benz AT-2000 and during our evaluations we visited the contenders and this aircraft is what is termed was still a paper aircraft. In other terms it means no metal has been cut is the terminology if you speak the, call it the lingo. In  
25 simple terms it means that this aircraft is still in its concept

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phase, so it is a design on paper, and also when we visited the company they could show us a large model, probably something like four or five times the size of the model up on the stand of what their concept was that this aircraft would look like once it was developed and designed. In other words very early in the development phase, and that is what then is termed a paper aircraft.

As it turned out on the request for information phase this aircraft was looked at because there are certain advantages of starting a development as would have happened on the future medium fighter of an aircraft such as an AT-2000, it would mean involvement through the design and development and others, the issue obviously it would be a very high risk because you are starting from paper whereas other aircraft could be flown *et cetera*, so I think if that puts that into adequate context that was what was meant by a paper aircraft. Thank you Chair.

DR MADIMA: Thank you General. You might have touched on this issue on Monday or yesterday but again we would like you to put meat to the bone, more emphasis on what informed the choice between the second, between the two and the three-tier system for the Air Force.

BRIG GEN BAYNE: I think Chair both the Deputy Chief of the Air Force and myself have at length described that the Air Force right from the beginning always had a three-tier training

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system, not only for its fighters, in fact for all aircraft, for all our aircraft there is a Wings Course, there is a type of stepping stone aircraft and then your frontline fully operational aircraft and in the case of the fighter line always the same, in the past  
5 Harvard, Impala, Mirage and then onto other types, however, I also alluded to the vast budget cuts which occurred during 1990 and 1997 and during this process the renewal of the fighter fleet was being debated and considered prior to knowing that these would be in the SDP's where additional government  
10 funding would be available.

I also alluded to the fact that the Air Force was forced to make very much a cost driven and not a needs driven decision and so it ended up with the funding available on the capital plan, at the time the departmental planners also were  
15 aware of this with the Air Force that it would be possible with the funding available at that point to afford the full capability, and so due to the fact that very early indications were that some of these new aircraft, and I have alluded to the types of technology could possibly be transitioned to an a, what was  
20 termed at that stage then a two-tier, in other words from our new trainer being the ASTRA which had replaced the Harvard which was obviously more capable than the Harvard and so this aircraft was going to then be looked at as an option within the cost driven model to see whether the Air Force could go this  
25 route and clearly this would mean that then we would not need

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two systems but only one.

At the same time that this occurred the RFI's, the request-for-information, remember, had been received back from the advanced fighter training requirement and I again reiterate many people get confused between the advanced fighter trainer phase which was put on hold because of also waiting for the packages. During that period the Air Force looked at a number of options, up to eight or nine options of how we could get our new fighter master plan fitted in with the available funding on the table.

The other question that of course had to be looked at was the fact that the ASTRA as it was at the time did not have any capability other than basic flying, as you can allude to from the photographs which I showed. One of the options that were considered in the study was to then look at putting hard points on the ASTRA, arming the aircraft such that it could at least carry out the armament training, in other words that the trainee would be able to fire a cannon or at least a gun, albeit a lighter gun than what a cannon is, and drop practice bombs and also have an aircraft that had under-wing drop tanks because you need to train the initial fighter pilot as I alluded to in an environment of heavyweight aircraft, different types of configurations as well.

This was thought that it would be possible at the time, however, having just acquired the ASTRA one of the

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stipulations in the ASTRA contract was that an agreement was reached that the ASTRA would not be armed and this also led again the Air Force to realise that to take an air crew member or a pilot from that ASTRA to even an advanced light fighter which we had lowered our sights on was highly risky and would be a safety risk unless managed very carefully. Also of course it would mean that you would have to fly a lot of hours on your fighter aircraft as such and so the Air Force having considered this, took the decision that it was necessary to stick with its proven record of three-tier.

This was carried in by the Chief of the Air Force to the Armaments, sorry, the Armaments Acquisition Council at the time and I cannot testify to that debate, what I can say is that it was carried in by the Chief of the Air Force, this status of us having considered the option, the pros and cons and challenges that we had and this debate took place at that Armaments Acquisition Council and that is chaired by the Minister of Defence as you've heard, it's the highest council, and when that reply came back to the Air Force that, the decision was that we were going to remain with the three-tier system, that is when I was called in to say that I would be the project officer of Project Winchester which was the registered project then for the lead-in fighter training. I hope that has answered your question, thank you Chair.

DR MADIMA: General, do you confirm that the decision for

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the three-tier system was the decision of the Air Force and nobody else?

BRIG GEN BAYNE: No. The Air Force would not have made that decision, it would have been made by the Armaments  
5 Acquisition Council in terms of the decision. The carrying of the need to stay with the three-tier system was carried in by the Air Force and at that point it would have been the Chief of the Air Force who attends meetings at that level, and the debate, I can only imagine, was taken there with all of the  
10 senior members and then the decision that came back, I can confirm the decision that came back because I was then called in and told the decision is the Air Force is staying with the three-tier system and I then became the project officer of Project Winchester at that point of time.

15 And I think I have alluded largely to the fact that you will only, you will only move off that three-tier system if you are sure in my opinion, and that would have been my considered opinion at the time and now, and that is that you would only do that if you could transit in the two-tier safely and  
20 adequately from a military training point of view. Thank you Chair.

DR MADIMA: General would you go to page 100, Commissioners, page 100 of the bundle. You don't have it? Is it okay? Do you want me to read it for you? Commissioners,  
25 are you there? Chairperson?

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CHAIRPERSON: Dr Madima maybe before we move from this point just for my own understanding can I just try and find out from the General, if I'm not, do I understand you to be saying that in terms of the contract that you had with the manufacturers of the ASTRA, ASTRA was not supposed to carry  
5 any weapons?

BRIG GEN BAYNE: That is correct Sir.

CHAIRPERSON: Two; am I correct to say from what you have said up to now it appear as again South African Air Force  
10 recommended the three-tier training system and the decision was ultimately made somewhere else and you were not part of that part of group of people who made that decision?

DR MADIMA: No Sir, that was made at the highest level at the Armaments Acquisition Council where the member from the  
15 Air Force would have been our Chief of Air Force at the time that would have attended that meeting, I was only part of the options as part of the study, the workgroup and work study group of which was large that debated and looked at the two options of two-tier or three-tier, either retaining our three-tier  
20 we had all the time, or looking again to move to, possibly to move to a two-tier if we could. Thank you Chair.

BRIG GEN BAYNE: So the three-tier training system was one of the options that the South African Air Force recommended or  
is it one of the systems, training systems that the South  
25 African Air Force said that it is one of the options that they can

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look at?

BRIG GEN BAYNE: Sir, the Air Force had always had a three-tier, so we always, we'd always train that way. Then due to cost the option of changing to a two-tier system was investigated and compared to the advantages, disadvantages, risks involved and then to cognisance of the RFI feedback from the project team that it had been out on the AFT programme at that point in time and some of the feedback on the RF..., other information. And the Chief of the Air Force carried that debate into the Armaments Acquisition Council where it was tabled by the Chief of the Air Force for discussion and decision and the decision made at that forum was three-tier, is to continue, that the Air Force would remain with the three-tier system. Thank you Chair.

CHAIRPERSON: Lastly will I be correct to say that if at all was not a cost constraint the Air Force would have recommended that they stay with the three-tier system because that is a system, that three-tier training system, because that was a system that the South African Air Force was used to and they did not complain about that system, you were only forced to look at the possibility of a two-tier training system because of cost considerations?

BRIG GEN BAYNE: That is how I understand it Chair, yes. Always had.

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BRIG GEN BAYNE: Thank you Chair.

DR MADIMA: Thank you General. You have just confirmed that the Air Force has always used a three-tier system.

BRIG GEN BAYNE: I confirm.

5 DR MADIMA: Now can I take you to page 100 of the bundle, the last sentence there. Chairperson, are you there? The last sentence General, do you see that? I'm going to read it for you and I'd like you to comment:

10 *“Documentation of the Strategic Planning Workshop attached to the minutes of the meeting indicates that the two-tier system was not acceptable to the Minister”.*

And General, I want you to remember what you just confirmed here that the Air Force has always used the three-tier system.  
15 Now the first question would be would this be the reason the Minister was not in favour of the two-tier system knowing the history of the system that obtained at the SAAF?

BRIG GEN BAYNE: I, as I said, because I was not part of the, in the AAC, was way above you know my level at that point, so  
20 I can only believe then that this would not have been a decision taken lightly, it would have been debated by a higher level than just the Air Force as well and discussed and can I say considered before the final decision was taken then at the AAC, but I cannot comment, I was not present at any of those  
25 sessions or meetings, so I cannot confirm that part of it, I can

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confirm that the Air Force always has had a three-tier system, cost constraints led us to have to look at not only that two-tier system, I mentioned the other options we looked at, at upgrading, training elsewhere, this was all part of the debate  
5 within the Air Force. I imagine there were also other debates that happened about these matters in other forums of the DOD and the system at the time but the decision making board or council as I understood it at the time, would have been correctly the AAC which was the highest forum authority at the  
10 time of these matters, I cannot confirm you know who, the statement as such, because I was not there or present at the time. Thank you Chair.

DR MADIMA: Okay, let's proceed with the paragraph:

15 *"The SAAF Command Council then concluded that a three-tier system in operating both the ALFA and the lead-in fighter trainer (LIFT), was essential to satisfy the requirements of the SAAF in relation to fighter training and fighter consolidation in a cost effective manner".*

20 Comment on that?

BRIG GEN BAYNE: Yes again I'm not a member, I was not a member of the South African Air Force Command Council, that is the Air Force's highest command council. What normally happens is prior to going obviously to the higher councils  
25 where the Minister and the Chief of Defence Force would be

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present the Air Force will firstly obviously have their board meeting, this is the, this was the highest forum in the Air Force at the time where they would have heard and debated again those same considerations around two or three-tier and come to  
5 a conclusion and then what happens in all our programmes it goes to the next higher forum, in this case it would have gone to the higher forums I referred to and then it would have ended for a final decision at the Armaments Acquisition Council Chair. Thank you.

10 DR MADIMA: Thank you General. The critics, and I'm going to quote here from a book by Paul Holden *The Devil in the Detail* on page 170 thereof Paul Holden and Hennie Van Vuuren, *The Devil in the Detail : How the Arms Deal Changed Everything*, the last paragraph there, it says that:

15 *"In 1987 a decision was made to switch from a three-tier system to a two-tier system, largely as a means to reduce the operational costs of the Air Force".*

Do you want to comment on that? Can you comment?

20 BRIG GEN BAYNE: I confirm 1997, not 1987.

DR MADIMA: 1997.

BRIG GEN BAYNE: Okay, thank you. Yes, I think that's ... I've said it was cost driven and not needs driven, that's how we had it at our level in the debates at the levels that I was  
25 involved in is that we need to look at not only this tier, other

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options as well because of cost constraints of available funding on the the-then DOD capital budget. Thank you Chair.

DR MADIMA: General, now was this a decision that was taken or was it one of the considerations that were being  
5 deliberated?

BRIG GEN BAYNE: I keep saying they were options that were being deliberated, the option to go to the two-tier from a traditional three-tier system, so the thought was it could possibly be done, so information was gathered, deliberations  
10 done, workshops held, goes to the Air Force Board, goes up for a decision, that's how I understood the process to happen at the time.

DR MADIMA: Yes, I do take into cognisance the fact that the writers of this book are not members of the Air Force and they  
15 were not in those deliberations and discussions that were taking place at the time. Now General again quoting from the same book page 171, at the top there it says:

*"In November 1997 the SAAF Command Council busy overseeing the selection of preferred bidders met to  
20 discuss the tiered system once again. During the November 1997 meeting apparently on the strict instructions of Modise ...".*

Apparently the former Minister of Defence:

*"... this system was again changed and it was  
25 decided to revert to a three-tier system. This*

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5            *decision has been made it was claimed after the Air Force had sent out RFI's for a two-tier system that is for just a combat fighter or ALFA, and when the responses were received it apparently became clear*

10           *to the Air Force and especially Minister Modise that an additional tier was needed. The important difference, however, was that the middle tier would no longer be made up of a plane that would both fight and train, instead it would be a plane that could only train pilots to graduate to the final tier.*

*This of course meant that the Hawk which was only used for training and could not fight in combat situations could now be reconsidered".*

Any comment General?

15        BRIG GEN BAYNE: Chair, as I said I would prefer not to comment on the view of that quote as such in terms as you said, I can only go with process and with what happened in terms of the debate and then it was at higher forum, so I certainly cannot comment on the feedback and decisions taken

20        at boards where I was not present at the time, I can however confirm again that the RFI's that we sent out at that point in time was for the advanced light fighter aircraft which remember at that point in time had been changed then from the AFT, so I'm not sure, but I see again which I alluded to that many

25        people confused the advanced fighter trainer which would have

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been the light fighter and the trainer for the future medium fighter. The future medium fighter had then been terminated or cancelled because again of cost and the Air Force's frontline fighter would now be an advanced light fighter.

5                   This aircraft again I say due to modern technology in aircraft an air force will always look at the most cost effective way of doing the task and so it would have looked at, and it did look at the possibility of then having a two-tier system because it would have meant you would not need to  
10                   have another aircraft system, we had already, however, committed to the ASTRA.

                  Had at that point in time for example possibly the ASTRA not yet been replaced by the Harvard then a different aircraft might have been chosen but that is pure speculation,  
15                   we don't know, we had the ASTRA, it was a given, the aircraft were delivered, there were restrictions on changing the ASTRA to meet and close the gap which at the time when the RFI's went out was a possibility and therefore the consideration I say again for two-tier.

20                   When all the information was received back and although certain contractors or contenders made statements to say that this can be done that is so. My personal opinion on that is obviously because the task of contenders is aircraft, but as I have alluded to the debates where I was involved at a  
25                   lower level, discussing the safety issues, the risks and the

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pros and cons of doing this *versus* remaining with our very proven three-tier system whereby the middle tier aircraft could also act with some or other certain collateral capability although not designed for were the inputs that I gave and  
5 certainly there were not only one or two of us, there were many of the pilots and the levels that were advising this process which I saw as the Air Force to prepare for the decision.

So, I cannot comment on what is someone else's view on that, everyone is entitled to their view and they are  
10 respected for that view as are contractors respected when they reply to RFO's and RFI's. Perhaps an interesting question, but we didn't have to ask it, was, would have been definitely something that we would have asked in the contracting phase, was that that so-called companies that said that you could take  
15 a fighter pilot from an ASTRA to a Gripen, would they have put that as a contractual guarantee in the contract, as a clause in the contract because this was an RFI stage. At the RFO stage when the same question was asked Dassault, or the Mirage 2000 said certainly not for example, and I don't want to get  
20 into that debate because what I'm saying is I believe in the domain of deciding on tiers and requirements for those sort of aircraft we did it, I think an air force always does it, and so the decision that came out at the end was the three-tier system was retained. So Chair, I don't know if that, that is of  
25 assistance, that is all that I can add to where I was either

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present or understood the situation and then I was appointed when the three-tier was decided. Thank you Chair.

DR MADIMA: Okay General, just to latch onto your explanation now regarding the RFI, can you for the sake of clarity, can you explain what the difference between RFI and RFO, what that entail?

BRIG GEN BAYNE: Chair I would prefer if I can, to leave that to my colleague Captain Jordaan, he is going to give an exhaustive testimony, I assure you he is the expert in this domain, you will also hear this from ARMSCOR colleagues, these are actions taken by ARMSCOR, I purely alluded to them because they came up and as you said in some of the documentation and literature out there these are mentioned, so if I could ask that we leave that explanation which will be detailed and with evidence and with documentation if we could leave that then to my colleagues who are still to follow from the Department to testify I would be, I would feel more comfortable with that. Thank you Chair.

CHAIRPERSON: I think it's only fair.

DR MADIMA: Thank you. Thank you Commissioner. General, is it correct that the Hawk only trains, and this is, remember General what I said, this comes from the critics, Paul Holden, in one of those statements that I read to you. Is it correct that the Hawk only trains?

BRIG GEN BAYNE: The Hawk is designed to be a trainer, a

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fighter trainer aircraft, an advanced trainer aircraft, as was the Impala, however, all military aircraft have what is termed a collateral operational role, even the ASTRA today has a small collateral role, we used it during the World Cup for some visual reconnaissance, the fact that an aeroplane flies and you can put military air crew in an aeroplane means it can carry out some task, it could do visual reconnaissance, it could assist in what we term buffeting for point defence where it's just flying around getting in the way, so you can imagine again depending on whichever aircraft you fly it will always have because it's an aircraft, some collateral value, you find that airliners can be freight aircraft, you just take the seats out.

You know this is very much so, so I would not like to enter again into a debate, all I can say is that virtually all military aircraft have some form of collateral capability, but for example a Gripen now will be designed as a frontline fighter. Its systems for example will have what is called gradual degradation, if you have a failure on a Gripen you can carry on the mission up to a point because it will have redundancy, it will have a second system, now the Hawk will not have that because it wasn't designed for that, it was designed to train, if something happens in a training sortie you come home immediately because you don't want to risk the aircraft, but if you have a fully operational aircraft and it's flying in a war situation where your troops need support or it's a key

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programme, that is why we are in the military, then you will push it to the absolute limit your aircraft and fighter aircraft are designed or all operational aircraft, the same with helicopters and others that are combat aircraft have this type of redundancy, so just to, if I can simply put it to bed, an aircraft if it's designed as a trainer aircraft, does not mean that you cannot use it any other military role, it will have a degree of collateral capability depending on the type of aircraft will then determine in your environment and your air force whether it has a collateral capability or not.

There are some air forces, of course the bigger air forces that probably would not use the aircraft for that purpose because their training needs are a lot higher or whatever reason, it's a doctrine and that issue, but as I said we even use the ASTRA aircraft in some very small collateral capability. Chair, I hope that assists the Commission as an explanation on that statement. Thank you.

DR MADIMA: Thank you General. Don't let the critics raise your blood pressure, just remember that they are not as technically inclined as you are on matters pertaining the Air Force, so whatever they write here is their opinion as you said and it has to be respected, however, we need to rebut some of the stuff that they write about. Now General, can you confirm which aircraft came first in the RFO evaluation of the ALFA?

BRIG GEN BAYNE: Sir, I can confirm that the Gripen came

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first on the military value RFO for the advanced light fighter aircraft on the military value and then was also selected eventually as we know as the preferred aircraft. Thank you Chair.

5 DR MADIMA: And how tough was the competition between the Gripen and those others that competed?

BRIG GEN BAYNE: Chair I think you will hear a lot more about this again from the ARMSCOR when they testify, I can, however, allude to the fact and I have on the previous question  
10 that the AT-2000 aircraft was a paper aircraft, it would have been a high risk and also that aircraft additionally when the RFI's were done the business case was not yet secured for that aircraft, the German Government had not committed to the development of the aircraft and they were hoping if I recall  
15 correctly that the Asian ring countries would have been the main partners in this development of this aircraft and then had South Africa elected to go in on this programme then this would have materialised.

By the time we had completed the RFO's if my  
20 memory serves me correctly and it will, I say again because it's in the cost and finance part of the aircraft and the valuations, it's in the ARMSCOR domain, but at that point in time they could not supply guarantees that there was a business case yet for the aircraft, and hence you find then that between the RFI  
25 on the ALFA where the AT-2000 did well, to the RFO this

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obviously meant that the aircraft on the RFO came third in the evaluations on that, the Mirage 2000 came second and the gaps in between were not significant in terms of performance for both the Mirage 2000 and the Gripen were both already flying, they were both already delivered to the French and the Swedish Air Force, so in terms of advanced light fighter type of aircraft they were both, as I said, already developed products flying into very good and established air forces and therefore they were very, very competitive products from a military flying perspective, if that answers the question Chair.

DR MADIMA: General, a question was posed in Parliament or rather a statement was made that there were, currently we have 16 trained pilots for the Gripen *versus* the 26 aircraft that we have. Now I'm sure a lot has been said about that. The question I would like to, I would like you to clarify for the Commission is the international benchmark, pilot *versus* aircraft. Can you please clarify that for the Commission?

BRIG GEN BAYNE: Certainly. Chair, a standard squadron benchmark is normally 16 aircraft and then if you had two squadrons you would have 32 aircraft *et cetera*. In this case again due to budgetary considerations it was decided that we would scale down to a single squadron being 2 Squadron at Air Force Base Makhado in our case and all the aircraft would go to that squadron. Ideally you would want to have two squadrons, ideally, due to factors that of competition and being

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able to develop tactics *et cetera* together, but the standard is  
16 aircraft. So, for 16 aircraft as well you would generally  
then want 16 pilots. However, if you only have one squadron of  
aircraft as we did, the 26, the rationale of the Air Force in  
5 around 1999 there was a document written where we stated that  
we would, although we were getting one aircraft and remember  
at that point we did not fully comprehend how multirole and  
spin-role this aircraft was going to be, we understood it a little  
bit from the Cheetah but not to that degree, so the rationale  
10 was six aircraft dedicated for air defence, six aircraft would be  
dedicated for air-to-surface and two aircraft for reconnaissance  
giving you 18 aircraft, which must be available at a peak for  
operations and at 65% average serviceability which was the  
experience then that led to the number of 28 which was the Air  
15 Force's minimum requirement below the Force Design which  
was required.

So, in terms of international benchmark then at that  
rate of 26 aircraft and then having the sort of around 16 is  
what we were wanting to build up to, to have a capability had  
20 the steady increase in pilots continued and hence at that stage  
we have trained around about that number of pilots, if that  
answers the question Chair. Thank you.

DR MADIMA: General, my penultimate question is can you  
comment on the flying part of the evaluation of the LIFT  
25 contenders?

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BRIG GEN BAYNE: Yes, as I said the overall evaluation is in others' domain, but clearly when it comes to flying then the Air Force is the lead agency so yes, we did fly the three contenders, myself and the chief test pilot of the Air Force, he would have concentrated on the airworthiness, safety and those sort of aspects, I concentrated on the training aspects having been the, you know from being my background, largely in the training domain and then the operational flying part, and as I said he would have concentrated on certain other areas.

10           And I would say in summary when we flew the aircraft the, all three aircraft may I say, would have met the requirement for the training capability of the Air Force and the Aermacchi 339FD was of a lower performance class aircraft, the L159 and the Hawk aircraft were in a higher flying performance class of aircraft and one could tell that they were fairly closely matched in the domain. And so the summary that I would say was that the, on that evaluation the Hawk was evaluated as the aircraft that had the most capability, then L159 and then the, sorry then the 339 and then the L159.

20           But there was a rider to the L159 in fairness from the flying perspective and Aero Vodochody were upfront about it, is that the aircraft we flew had a, what was termed the developmental model of the avionics in the aircraft, it was still, the airframe was proven, I've mentioned before about the engine that we flew, this was fine, but the avionics were in an

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early stage of development, so we in our summary back we said that once that avionic system is developed and that was further evaluated through the paper exercise by the full team which was done, and I'm sure you'll hear more about that as well again when others testify about that process, but from the flying perspective we estimated that should the avionics then become mature that aircraft would be very close to the performance then of the Hawk in terms of flying the aircraft, so I think when the paper evaluations came on the training functionality which was more in a Defence or Air Force domain of the programme, we were not surprised with the comparison of the flying part of the evaluation *versus* what we had flown in the aircraft. That was the same information and summary that we would have tabled in our reports and for recommendations back to the various forums. Thank you Chair.

DR MADIMA: Were the purchases in the Air Force perspective value for money?

BRIG GEN BAYNE: Perhaps I'm not that familiar with the term "value for money", so I would be a bit cautious to answer that question, it's not a term we use in our domain, value for money term, so Chair unfortunately I'm not that comfortable to comment on that, I'm unsure of the term. We use the word cost effective, that means not necessarily you know least or more but relative to the cost that you expend or utilise do you get, you must get the most involved because we are actually in the

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department or in the government we are in a game of cost within budget and you cost as much as possible, so we are very focused then on cost. In my view that the cost effectiveness over 40 or 50 years when considered is then estimated in the beginning, it's continually updated along the way and then the measurement of cost effectiveness.

The difficulty with this is always one finds that unless you've actually operated the aircraft in your environment what I can say is that today we know what the systems cost us, particularly the Hawk at the moment *versus* the Gripen and what I can say is we are operating these two aircraft today within the cost estimates for the two systems in terms of flying cost per hour and in terms of operating them as was predicted at the time of the decisions. Thank you Chair.

DR MADIMA: Thank you General, that explanation also does cover part of my question, but do you have one last word for the Commission that would put paid [sic] to all the critics regarding pertaining to what the critics say regarding the purchases, is the one thing that you would like the Commission to know which will put paid to those assertions by the critics, one last word, one last paragraph really.

BRIG GEN BAYNE: Are you referring now on the ALFA or the LIFT, or the Gripen or the Hawk side Chair sorry, if I may ask? Sorry, through the Chair if I may ask the doctor. Thank you.

DR MADIMA: I was referring to the whole three-tier system

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that was acquired by the Air Force. What is it that you would like the Commission to know in rebuttal of the assertions by the critics regarding the purchase?

BRIG GEN BAYNE: Chair, all I want to say is that the task of  
5 the project team as directed and guided by the Air Force Command Council and the Project Board as to ensure that whatever aircraft was the process of the request-for-offer and tabled in the case of the Strategic Defence Packages to the Strategic Office Committee which is where our role ended was  
10 to ensure that all of those aircraft would meet the requirements of the Air Force.

Then there were matters as I've alluded to such in our case where our military value we evaluated, the risk was evaluated and then the analysis was given and on all those  
15 aircraft that would have been done, tabled at the Strategic Office Committee by in this case the team led by the ARMSCOR programme manager and then taken through what I understood in my view a strategic decision making process to the highest level of Government where many other factors I would imagine,  
20 I don't know, I was not part of that but I would imagine that these were Strategic Defence Packages and the final decision then lay with the Government and between us tabling that in that July where all these factors and evaluations were put through on the technical, and all I know is that we presented  
25 the technical, the other departments presented their part and

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from there on with the Strategic Office Committee we then waited for the final decision in November when we heard what that aircraft was, we were not in any way party to either the other departmental submissions nor to the strategic process if I  
5 may say at that point in time that took place from there. Thank you Chair.

DR MADIMA: Thank you General. Thank you Chairperson, we have no further questions.

**QUESTIONS BY THE COMMISSIONERS:**

10 CHAIRPERSON: General, one question from me. Do you perhaps know when these ASTRA aircrafts were acquired by the South African Air Force?

BRIG GEN BAYNE: Chair, it was, I can definitely say it was either in the delivery, the delivery of the first ASTRA, if I am  
15 correct Sir and I will come, I will submit however I need to do it via the Evidence Leaders, we will as the Air Force submit the exact dates like we did for Hawk and Gripen of the deliver..., I think we should submit, if you accept that Chair, the delivery schedule dates for the 60 aircraft from what month and year to  
20 what. I am fairly, as far as I know definitely mid-1990's were the start of the deliveries but we will get the actual dates of the delivery from the first aircraft until the last aircraft and submit that if that is acceptable to the Chair. Thank you.

CHAIRPERSON: I think that will be acceptable but then I think  
25 it is important that we have that information. Thank you.

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BRIG GEN BAYNE: We will supply Chair, thank you.

JUDGE MUSI: Can I just ... Just by way of a follow-up on the last question, as at the time of the SDPP, how many of these were then the ASTRA's?

5 BRIG GEN BAYNE: Commissioner, I am not sure when this process called the SDPP's began and ended in terms of that part of the process, but I am sure when we get the dates that certainly some of the ASTRA's would already have been delivered to the Air Force by the time the first proposed  
10 government proposals came in, and I think, I'm not sure but when the first government made the proposal of a package to our Government which I read and understand to have been around 1996 I am fairly confident we'd already received our first ASTRA's, but Commissioner that will be in the submission  
15 that we give on the exact dates and we will say how many, what we can include in there is how many of the ASTRA's have been delivered, say in 1996 and through to the end delivery date Commissioner, if that answers your question.

JUDGE MUSI: Yes, I'm interested in the time when this  
20 question of whether we have to go for the three-tier system or two-tier system, when this was discussed at that time, you don't have an idea of how many of these ASTRA's were there at that time?

BRIG GEN BAYNE: Commissioner, that would have been in  
25 November 1997, so I'd have to come back on exactly how many

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ASTRA's had been delivered by that period, but we will submit that, in light of your question we will submit it as such that it will be clear when the first aircraft came, how many aircraft were delivered, I understand that's your question to me and we will submit that in writing, how many were delivered at the beginning at the SDP's and then were they completed perhaps by then I can't say sitting here now and then when was the last one delivered, I will be able to submit, the Air Force will be able to submit that in writing as a statement Commissioner.

5

10

JUDGE MUSI: You see, my question leads to this, if you had opted for a two-tier system for instance what would have happened to the ASTRA's?

15

BRIG GEN BAYNE: Commissioner the ASTRA would have been the first tier, it would have been tier 1 and from that wings on the ASTRA the combat pilot would have then gone straight onto the Gripen today.

JUDGE MUSI: Was that going to be feasible?

BRIG GEN BAYNE: Sir, that was what that debate was about and the decision was that it would not be feasible.

20

JUDGE MUSI: Thank you. Is the ASTRA the same as the Pilatus?

BRIG GEN BAYNE: Yes sorry Sir it's the same, the Pilatus, the Pilatus ASTRA.

JUDGE MUSI: Thank you.

25

CHAIRPERSON: Lastly from my side in that information that

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you are going to provide to us can you also include if it is possible the dates on which the process to acquire those ASTRA's started?

BRIG GEN BAYNE: We can. In other words when the Staff  
5 Target for that project was signed would have been the start of the ...

CHAIRPERSON: That's right, I think that will be helpful.

BRIG GEN BAYNE: Yes, and that would have certainly been, it would have been considerably earlier Sir.

10 CHAIRPERSON: Thank you. If we can just get that information.

BRIG GEN BAYNE: The Air Force will make sure that that is submitted Chair.

CHAIRPERSON: Thank you. Advocate Mphaga, I suppose the general can be excused then?

15 ADV MPHAGA: Yes. No further questions Sir.

CHAIRPERSON: Thank you. General, thanks a lot for the information that you have given us, you are now excused from attending these hearings Sir. Thank you.

BRIG GEN BAYNE: Thank you Chair.

20 CHAIRPERSON: Thank you. Advocate Mphaga I was told that you would require some time to sort out the papers before we can call the next witness.

ADV MPHAGA: It is correct Chair, Ms Ramagaga will proceed with the next witness, we just require just a short adjournment  
25 to prepare the bundles.

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CHAIRPERSON: What is a short adjournment? It's 11h05 now.  
10, 15, 20, 30 minutes?

ADV MPHAGA: 15 minutes Chair. 15 minutes.

CHAIRPERSON: 15?

5 ADV MPHAGA: Yes.

CHAIRPERSON: We'll give you another, an extra five, let's  
make it 20 minutes.

ADV MPHAGA: Thanks Chair.

CHAIRPERSON: We'll adjourn.

10 **(Commission adjourns)**

**(Commission resumes)**

CHAIRPERSON: Can we ask the witness to take the oath?

**(Witness is sworn in.)**

MS RAMAGAGA: Thank you Chair.

15

**WITNESS NUMBER 4 : RETIRED COLONEL FRANK KEVIN  
SERGEANT VILJOEN (Hereinafter referred to as "COL (RET)  
VILJOEN"), GIVES EVIDENCE UNDER OATH**

**EXAMINATION IN CHIEF:**

20 MS RAMAGAGA: Colonel Viljoen I'd like to focus your  
attention to bundle I which bundle contains your evidence.  
Chair and Commissioner Musi, the evidence will be presented  
from bundle I. May I just indicate that as far as possible we  
have tried to incorporate all the documents that will be referred  
25 to in this bundle, where necessary we have made provision for

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the extracts and they are paginated. It is only in extremely few cases where we will have to refer to the other bundles. May I then proceed Chair? Thank you. Colonel Viljoen, you are currently, you are actually a colonel in the South African National Defence Force Reserve?

COL (RET) VILJOEN: That is correct Chair.

MS RAMAGAGA: And you are serving within the South African Air Force arm of service?

COL (RET) VILJOEN: That is correct Chair.

10 MS RAMAGAGA: You are currently the Project Officer in the Reserve Force officer capacity for the Agusta A109 light utility helicopter which will henceforth be referred to as the LUH.

COL (RET) VILJOEN: That is correct Chair.

15 MS RAMAGAGA: And you report directly to the Director Air Force Acquisition in the Defence Material Division?

COL (RET) VILJOEN: That is also correct Chair.

MS RAMAGAGA: You have made a written statement to the Commission relating to the evidence that you are going to present.

20 COL (RET) VILJOEN: That is correct Chair.

MS RAMAGAGA: Now attached to your statement we have, you have your *Curriculum Vitae* which appears in pages 6 to 10 of bundle I.

COL (RET) VILJOEN: That is correct Chair.

25 MS RAMAGAGA: Now I would like to take you to page 7 of

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your *Curriculum Vitae*. Now in terms of the *Curriculum Vitae* you have the first document being the document that contains your *Curriculum Vitae* and also there are appendices to your *Curriculum* which are Appendix "A" relating to the medals awarded to yourself. "B", awards to yourself Sir, "C" is the flying award to yourself Sir, "D" is the paper read by yourself and "E" is your personal information.

COL (RET) VILJOEN: That is correct Sir.

MS RAMAGAGA: Now will you take us through your *Curriculum Vitae* please, commencing with the aforesaid page, page 7?

COL (RET) VILJOEN: As mentioned in paragraph 1 of page 7 of the bundle I was born in Johannesburg on the 9<sup>th</sup> of February 1949 and I matriculated at the Kimberley Boys High School in, at the end of 1967 where after I reported for compulsory military training at the Air Force Gymnasium in the beginning of 1968. During that phase I went through a selection phase for Pupil Pilots Course and I was successful, and on the 10<sup>th</sup> of July 1968, correction, 10<sup>th</sup> of June 1968 I reported to Central Flying School Dunnottar to commence my basic flying training on the Harvard aircraft that has been alluded to by previous Air Force members.

MS RAMAGAGA: And now Sir will you please take us through the courses that you have completed, that is the flying courses completed and flying units where you served?

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COL (RET) VILJOEN: Mr Chair what I've done is I've broken the courses up into flying courses and ground courses and where some of them are combined I will very briefly just mention them. As mentioned I did the Basic Flying Course at  
5 Central Flying School Dunnottar over the period 1968, 1969, thereafter or while there I was streamed, streamed in the Air Force terminology means selected to serve in a transport aircraft role, I was then transferred to Air Force Place Bloemspruit where I underwent a Multiengine Conversion  
10 Course on the Dakota DC3.

Having completed that I was transferred to a squadron at Ysterplaat, 25 Squadron where the basic role was air transport, and secondary role was assisting in flying the pupil navigators that were going through their practical phase.  
15 I've served at 25 Squadron from 1970 to 1973 where after I did an Albatross Conversion Course and was transferred to 27 Squadron also at Air Force Base Ysterplaat.

MS RAMAGAGA: Can we pause and request you to give the Commission information on your service within the 27 Squadron  
20 at the Air Force Base Ysterplaat?

COL (RET) VILJOEN: Mr Chair, as I've mentioned in my statement that I've served at 27 Squadron during a very interesting time, Admiral Higgs had alluded to the fact of the importance of the Cape Sea Route and at that stage the Suez  
25 Canal had been closed from 1969 and was only reopened in

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1975 to the best of my knowledge and our task on flying Albatross's was to investigate the shipping moving around the Cape and the South African coast, and to give an example of the amount of shipping at certain times a flight or a patrol  
5 between Cape Town and Port Elizabeth over a 100 ships could be investigated during such a mission, that goes to show the importance of the Cape sea route and the necessity for some of the equipment that was mentioned earlier.

MS RAMAGAGA: Thank you Colonel. Then you mentioned  
10 that having served in the Squadron you then changed lines, that is you actually converted to the, from the fixed wing to the rotor wing, shall you please take us through?

COL (RET) VILJOEN: Mr Chair that is correct, I served at 27  
15 until the middle of 1975 where after I applied to change lines which means I moved from a fixed wing aircraft type to rotary wing or a helicopter type, I started my basic helicopter training at Ysterplaat, did the advanced flying phase in Bloemfontein and thereafter was transferred to 17 Squadron at Air Force Base Swartkops in Pretoria at the end of 1975.

MS RAMAGAGA: Now you mentioned that when while you  
20 were with 17 Squadron you were flying the Alouette III helicopter.

COL (RET) VILJOEN: That is correct Chair.

MS RAMAGAGA: And as a pilot of the Alouette III what  
25 other important exposure did you have especially with regard to

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the techniques and so forth of the Alouette III?

COL (RET) VILJOEN: At that stage I was over-awed with the capability of the Alouette but as time moved on, and my statement will vouch for this, that we realised that the Alouette  
5 was reaching the end of its service life in the South African Air Force.

MS RAMAGAGA: Right. Then you proceed to inform the Commission that you became a pilot, you undertook a Pilot Navigators Course in 1976. Now can you just inform the  
10 Commission as to which equipment were you trained on in order to acquire this course?

COL (RET) VILJOEN: Mr Chair without going into too much detail when piloting either a conventional aircraft or a rotary wing aircraft our primary navigation aid is a map, however, the  
15 navigator very often has no visibility outside and he is forced to make use of plotting charts, make use of sextons to take sun shots and star shots to plot his position and this just gave me as an air crew member a totally different perspective of how difficult the navigator's task actually is compared to how we  
20 used to navigate.

MS RAMAGAGA: Thank you Colonel. Then you proceed to talk about your position as a fixed wing instructor. Will you please give us more detail about that and maybe let me just say it is also important to talk about that and relate it to your  
25 earlier indication that you now crossed lines to the rotor wing

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and here now you are back talking about the fixed wing instructor position.

COL (RET) VILJOEN: Mr Chair, the normal progression for instructors in the South African Air Force is to start your  
5 instructors course on, at that stage on the Harvard and even though I had been off fixed wings for some time flying rotary wings it's very much like riding a bicycle, one never forgets to ride a bicycle, so it was fairly easy to get back into the swing of things on the Harvard. I then completed my instructors  
10 course and served as a flying instructor at Central Flying School until there was a dire shortage of instructors at the Helicopter Flying School at Bloemfontein and I was transferred back to Bloemfontein.

MS RAMAGAGA: Now after you were transferred to  
15 Bloemfontein you then started flying the single engine turbine helicopter, that is the Alouette III. Will you please then take us through your *Curriculum Vitae* moving forward?

COL (RET) VILJOEN: Mr Chair as I said I successfully completed my rotary wing instructors course at the end of 1979  
20 I think, yes at the end of 1979, and for the duration of 1980 I served as an instructor for students that were converting onto rotary wings. During my stay at 17 Squadron, correction, at 87 Flying School a decision had been made at Air Force Headquarters to commission a new squadron at Air Force Base  
25 Ysterplaat equipped with multiengine aircraft and as mentioned

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earlier at this stage I was not qualified to fly a multiengine helicopter and had to undergo two courses, one onto the Super Frelon helicopter which is a 28 seater, three engines and shortly after that I converted onto the Puma, slightly smaller  
5 but still considerably bigger than the Alouette, 16 seats and two engines. I was then transferred to start the new squadron which was known as 30 Squadron at Air Force Base Ysterplaat.

MS RAMAGAGA: Yes, thank you Colonel. Will you then take us through your position and your duties during the period from  
10 1981 to 1986, that is the period when you were actually exposed to the Super Frelon, the Puma's within that squadron, 30 Squadron?

COL (RET) VILJOEN: Mr Chair as mentioned having successfully completed my conversion course onto the two  
15 helicopters mentioned I served at 30 Squadron from 1981 until 1986 and one of the primary roles at that stage was to support Special Forces Operations off a naval ship known as the SAS Tafelberg, that was converted into a helicopter carrier and I was fortunate enough to be some of the members that did all  
20 the development flying to ensure that we could operate off this ship successfully.

A secondary role of this squadron was in support of the motor vessel SAS Agulhas which is the research ship from at that stage Department of Environmental Affairs and their  
25 task was to resupply the Prince Edward Islands, Gough Island

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and as well as in Antarctica the SANAE base in Antarctica.

MS RAMAGAGA: Now Colonel take us through to the time when you now became the multiengine turbine helicopter instructor, what I notice from your *Curriculum Vitae* is that you had firstly become a fixed wing instructor, subsequently you served as a rotary wing pilot instructor and now you were appointed to be a multiengine turbine helicopter instructor. Will you take us through please.

COL (RET) VILJOEN: Mr Chair this is again the evolutionary phase, I had converted onto the types but needed sufficient experience before I could become an instructor on type and my services were required so that I could impart my knowledge to the other pilots on the squadron that needed to embark on the SAS Tafelberg.

MS RAMAGAGA: You have just alluded to the fact that you had to undergo certain, or you had to obtain certain instructor positions before you could be appointed to an instructor on type, can you just elaborate a bit on what you mean by the appointment to be an instructor on type?

COL (RET) VILJOEN: Mr Chair it all revolves around experience, one does a conversion onto a particular type, you are able to fly it but your experience and knowledge of the machine is fairly limited and once one has sufficient experience then you would move on to become an instructor and with that experience you are able to impart it to the young pilots that

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possibly don't have that kind of experience.

MS RAMAGAGA: Right, thank you. Then let's proceed to deal with Luna Operations Course on the Alouette that you underwent, will you explain to the Commission as to what the Luna Operations Course entails?  
5

COL (RET) VILJOEN: Mr Chair at this stage operations were moving or in a transitional phase from day operations to night operations, up until this stage night operations were extremely difficult because of the lack of night-vision goggle technology available worldwide and this was the groundbreaking phase within the South African Air Force where we acquired night-vision goggles and I attended the course flying the Alouette helicopter doing the Luna Operations Course where I was exposed to the utilisation of night-vision goggles.  
10

MS RAMAGAGA: Right. Colonel you alluded to the fact that this was the last flying course of your Air Force career, in fact the last flying course of your Air Force career was a conversion onto the Oryx medium transport helicopter. Will you expanciate on that please.  
15

COL (RET) VILJOEN: Mr Chair while I was serving at 30 Squadron in Ysterplaat there was an avionic upgrade requirement for the Super Frelon helicopter and I was appointed as the project officer for that programme. I served on that upgrade programme ... Mr Chair, would you like me to start again? While at 30 Squadron I was appointed the project  
20  
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officer or an avionic upgrade that was being implemented on to the Super Frelon helicopter and for my services rendered towards the end of 1986 I was approached to head up the Oryx Development Programme that had been commenced and I then transferred to Pretoria where I became the project officer for the Oryx medium transport helicopter. The aircraft had not yet flown at that stage, we went through the developmental phase and once it was flying we had to put it through an intensive flight trial unit to validate the performance, logistic supportability, training aids *et cetera*, on this particular product, and I deemed it necessary to do a conversion onto type so that I was able to at firsthand identify some of the shortfalls that the project had entered into and that was the last flying course that I did in the Air Force, that was in 1990 on the Oryx.

MS RAMAGAGA: Colonel, you mentioned that you became a project officer for the avionic upgrade, can you just give us more information on that because we have already heard a lot about the avionics of the equipment but it would help for you to enlighten us, especially regarding here to the fact that you were the project officer of the avionics upgrade in this respect.

COL (RET) VILJOEN: Mr Chair in order to carry out a project successfully certain courses have to be done and addressed those under my ground courses, I can enter into some of the specifics now or I could cover them generically when I do the

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ground courses.

MS RAMAGAGA: It is acceptable that you will deal with them when you deal with the generic ground courses. Shall we then proceed? Maybe Colonel it would help for you just to  
5 inform the Commission as to what are the basic requirements for one to qualify to become a project officer within the South African Air Force.

COL (RET) VILJOEN: Mr Chair the very basic requirement is the will to get involved in the developmental cycle of what a  
10 programme consists of, so it is in someone's makeup to either want to or not want to and I was desperately keen to get into this and I, looking back on my career I will never regret having entered into that phase of acquisition, however, the first course that one needs to do, one needs to do a project officer's  
15 course and obviously whatever you are developing you would like to fly or someone else to fly and in order to ensure that the product that you deliver is at the right specification I deemed it necessary to do a Maintenance Test Pilot Course which I completed ... I'll just have to look at my notes please  
20 Mr Chair. Correct, in 1982 I successfully completed the Maintenance Test Pilot Course in Pretoria.

MS RAMAGAGA: Right, shall you then take us through to 1990 when you participate ... I beg your pardon Chair. Shall you then please take us through to 1990 when you participated  
25 in the Oryx Intensive Flight Trials?

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COL (RET) VILJOEN: Mr Chair once again this was a unique concept that was utilised in the South African Air Force, the objective was to take the complete product as I mentioned, air crew capabilities, aircraft performance, publications, logistic support in order to see how well this product met the requirements of the end user being the South African Air Force, and what we did is we took a prerequisite number of helicopters which were five, and we flew them intensely to certain servicing schedules to see that the technical crews could carry out the services, that the correct ground support and test equipment were available, the correct spares were available and the correct spares holding were available, and also to ensure that the air crew syllabi was suitable to qualify the people to carry out the operational roles expected of them of the Air Force.

This concept is no longer used unfortunately, it is now referred to as an operational test and evaluation which in the times that we live in is possibly a compromise because in my opinion insufficient hours are flown on the operational test and evaluation to validate all the criteria that one is able to measure on an intensive flight trial unit.

MS RAMAGAGA: Thank you Colonel. Shall you then now take us through to 1992 when you concluded your flying career? That appears in page 9 of the bundle I.

COL (RET) VILJOEN: Mr Chair as mentioned my last course

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was in 1990, thereafter I attended the Senior Command and Staff Course during 1991 and in 1992 I wanted to get back into flying but unfortunately due to the pressures of the project management I was unable to give it my full support and decided  
5 to hang up my gloves at that stage with about 6 000 flying hours.

MS RAMAGAGA: Yes, I noticed that you had flown in excess of 6 000 hours, flying hours. Can you just give the Commission information on the flying hours as to whether there are any  
10 medals or any recognition given to members who would have flown certain hours?

COL (RET) VILJOEN: Mr Chair pilots are identified by their pilot wings which we wear on our left breast. At present once a student qualifies or receives his wings he receives a bronze  
15 wing. As he gains experience and at 500 graduates to a silver wing, however, some of us lucky members that were able to stay in the cockpit long enough and after accumulating 2 500 hours, we are awarded our gold wings.

MS RAMAGAGA: Now within the South African Air Force are  
20 the gold wings the highest or the best way of showing that you have achieved the best in terms of acquisition of wings, flying wings?

COL (RET) VILJOEN: Mr Chair, that is correct. However, that award does not necessarily stop at 2 500 hours, we have an  
25 Aviation Safety Directorate that looks at the member's

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performance and in recognition of accident free hours certificates are handed out at regular intervals for accident free flying.

MS RAMAGAGA: With your vast experience in flying did you  
5 obtain any of the certificates Colonel?

COL (RET) VILJOEN: Mr Chair I must be honest, the answer is  
no.

MS RAMAGAGA: Now shall we proceed to deal with the  
ground courses that you completed, that appears on page 9 of  
10 the *Curriculum*, of bundle I.

COL (RET) VILJOEN: Mr Chair I'm almost embarrassed to  
mention the first course if I see the degree of legal prowess  
around me, so my humble attempt at not becoming a lawyer but  
at least understanding something in the legal environment, in  
15 1971 I carried out or completed a Basic Law Course at the Air  
Force Gymnasium and however it being a very basic course it  
stood me in good stead in later parts of my career during  
contract negotiating phases.

MS RAMAGAGA: And shall you then proceed to deal with  
20 the courses, the course that you undertook in 1972?

CHAIRPERSON: I'm sorry Ms Ramagaga, just for my  
understanding why are the places where you are trained they  
call them Air Force Gymnasium? Why a Gymnasium?

COL (RET) VILJOEN: Mr Chair I'm not quite sure what the  
25 origin of the name was or is but that was the base where all

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potential members of the South African Air Force underwent their basic training and I'm not quite sure why it was called the Gymnasium but to get through the place is possibly better said than going back again.

5 CHAIRPERSON: Thank you.

MS RAMAGAGA: Colonel, would you then proceed to take us through to 1972 when you completed your Junior Joint Warfare Course at the South African Air Force?

10 COL (RET) VILJOEN: Mr Chair I'd like to combine three ground courses, the one being the Junior Joint Warfare Course in 1972, then in 1983 I completed the Senior Joint Warfare Course and then I'd also like to allude to a Forward Airborne  
15 Controllers Course that I did in 1997, and just to explain the benefit that were gained from those courses during the latter work when I was writing requirements and various documents to have projects registered in the Air Force.

MS RAMAGAGA: Yes Colonel, you may proceed to deal with the courses jointly.

20 COL (RET) VILJOEN: The next three courses have already been addressed under the Flying Phase but for each Flying Phase there has to be a ground phase and these three courses were the Pilot Navigators Course in 1976, the Fixed Wing Instructors Course 1977/78, and the Single Engine Turbine Helicopter Instructors Course in 1978.

25 MS RAMAGAGA: Yes. Shall you then proceed to deal with

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the ground courses that stood you in good stead during your various project management responsibilities?

COL (RET) VILJOEN: Mr Chair as mentioned earlier I attended the Senior Command and Staff Course at the Air Force College in 1991, I also carried out various instructor, correction, project officers courses in Pretoria, culminating in the pinnacle of doing Professor At Sparrius' System Engineering Course in Pretoria.

MS RAMAGAGA: Right, thank you Colonel. Shall we now proceed to deal with your managerial experience?

COL (RET) VILJOEN: Mr Chair, again I'll combine two activities, I mentioned earlier that I served as the Super Frelon Avionic Upgrade Project Officer until 1991, as I mentioned from 1983 until 1991, that's when the Frelon's were phased out and I also mentioned that with that experience I was appointed as the project officer for the Oryx Programme and that was the start of my transition from being an avid aviator to a programme manager or project officer.

MS RAMAGAGA: Right, shall you then take us through the time when you were on the Oryx Project?

COL (RET) VILJOEN: Mr Chair this part is very important to point out that at what stage the Air Force identified a potential gap, as I mentioned while I was on the project, the Oryx Project, I commenced a study to determine the requirements of an Alouette III replacement, this information was incorporated

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into various versions of the User Requirement Statement and as I mentioned it's important to note that this requirement was identified as early as 1992 and an in-depth study was done to determine what the profile of a possible replacement helicopter would look like. Technologies had moved on, we all know that the electronic world is a fantastic race and we all try and catch up, and we had to make sure that what we identified or the profile for this possible replacement needed to be scientifically identified.

10           We gathered as many specialists as possible and went through the various roles and determined what systems would be required to satisfy these roles. And once this had been done one doesn't just decide to replace the helicopter, we went into an in-depth study to determine the feasibility of possibly upgrading the Alouette III and later in my statement I will refer to extracts from the Staff Target where the results of this study were highlighted.

MS RAMAGAGA:     Right, shall you then take us through to 1993 when you were transferred to the South African Air Force Headquarters as the Personal Staff Officer to Chief of Staff Operations, will you please just indicate as to what that position entailed?

COL (RET) VILJOEN:   Mr Chair as mentioned I was transferred to Air Force Headquarters as the Personal Staff Officer to a very senior general and this was the first introduction that I

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had had to the strategic thinking of senior officers in the Air Force and I was like a sponge, absorbing all this information, it was a real, real, real transformation for me, even though I had been subjected from the cockpit to programme management, at  
5 the strategic level things happened very differently.

MS RAMAGAGA: Now Colonel in 1994 you were transferred to the post of Staff Officer for Battlefield Support, will you please elaborate on that position as to what it entailed?

COL (RET) VILJOEN: Mr Chair as mentioned in 1994 I was  
10 transferred as the Staff Officer for Battlefield Support, there I was responsible for future rotary wing and fixed wing capabilities. During this tour I was appointed as the User Specialist Officer for the Maritime Helicopter Capability and the Alouette III replacement. While I was in this post I wrote  
15 the Required Operational Capability for the LUH as well as the Staff Target. These two documents were approved in 1995 which was the Required Operational Capability and the Staff Target in May 1996.

I also participated in drafting of the URS, User  
20 Requirement Statement for the Maritime Helicopter Capability and drafted the first version of the Alouette III replacement User Requirement. These two requirements were eventually satisfied with the acquisition of the Lynx 300 which was part of the Corvette's and the Agusta A109 as the light utility as we  
25 know it today.

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MS RAMAGAGA: Now in 1996 you were transferred to the Directorate Projects where the acquisition process for the Alouette Replacement Programme was initiated, will you give the Commission more information on your position in this capacity?

COL (RET) VILJOEN: Mr Chair, at this stage all the staff work or in layman's terms the relevant documents had been promulgated and I can go through them. In 1992 the Alouette III Replacement Capability Study was done, the Upgrade Study was done in 1993, the User Requirement Version 1 was done in 1994, the Required Operational Capability was 1995 as well as the Staff Target being approved in 1995. And as we've heard from previous speakers that once the Staff Target is approved the programme receives project status, so with the approval of the Staff Target the future LUH programme as it was known was then registered as Project Flange.

MS RAMAGAGA: Right thank you, you may proceed then to take us through your appointment in respect of the various projects.

COL (RET) VILJOEN: Ma'am, could you repeat the question please?

MS RAMAGAGA: Will you then take us through your *Curriculum Vitae* up to the time when you were appointed to the Agusta Project.

COL (RET) VILJOEN: Mr Chair while at Director Projects the

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Joint Project Team compiled a request-for-information document, this is a non-binding document and it was sent to 16 potential bidders to satisfy or not necessarily satisfy, that might have an interest in satisfying the LUH requirement.

5 These 16 or potential 16 suppliers were evaluated through the ARMSCOR evaluation process and three helicopters or suppliers were shortlisted and I will mention them in alphabetical order and in no other preference. The Agusta from the Finmeccanica Company for the A109 Power, and I  
10 mention "Power" because this subsequently changed to the LUH, the Bell Textron, a division of Canada Ltd. for the Bell 427 and Eurocopter, a subsidiary of the European Aerospace and Defence System for the EC635.

MS RAMAGAGA: Right Colonel, after the shortlisting of  
15 these three bidders then the traditional acquisition process was then overtaken by the SDPP's, shall you please take us through that process?

COL (RET) VILJOEN: Mr Chair via tradition I mean that all the relevant documentation had been promulgated as I mentioned  
20 and then one would normally go out on request-for-information which was done and then the next step would be to go out for request-for-offer or request for proposal, however, at that stage the SDPP process was starting to overtake our normal or traditional acquisition process and we were requested to issue  
25 a second request-for-information and the reason for this being

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that the traditional acquisition process never had a requirement for industrial or defence participation, correction, National Industrial Participation or Defence Industrial Participation, and this was a new initiative brought about with the launch of the SDPP's that this became a very big driving force in the acquisition process which was not done previously

5 MS RAMAGAGA: Right, then in 1998 a request-for-offer for 60 units was issued, will you please elaborate?

10 COL (RET) VILJOEN: Mr Chair that is correct. I would like to first get to the quantities and then the process, various other presenters have mentioned the White Paper of 1996 and the Defence ..., correction, of 1976 and the Defence Review of 1978. In the Defence Review the quantity of 60 helicopters was included and this stemmed from the study that was carried out in 1992 where we determined in order to satisfy an Alouette replacement a quantity of 60 units would be required. Having this figure we were requested and tasked to draft up a request-for-offer and we were instructed to include the NIP and the DIP information and we were only to send to the three finalists that I had mentioned earlier.

15 MS RAMAGAGA: Right thank you. Then in November 1998 the Cabinet announced that Agusta company had been selected as a preferred supplier for the Alouette, is that correct?

20 COL (RET) VILJOEN: Mr Chair that is correct.

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MS RAMAGAGA: Then the contract negotiations followed immediately thereafter and the contract was then signed on the 3<sup>rd</sup> day of December 1999 and it was, the contract was to take effect on the 1<sup>st</sup> day of April 2000.

5 COL (RET) VILJOEN: Mr Chair, that is correct.

MS RAMAGAGA: Now subsequent to the conclusion of the contract you were then relocated to the Agusta helicopter facility in Italy in May 2000 where you served as the project officer until December 2003.

10 COL (RET) VILJOEN: That is correct Mr Chair.

MS RAMAGAGA: And your tour of the project was then terminated and you were then recalled to South Africa.

COL (RET) VILJOEN: That is correct Mr Chair.

15 MS RAMAGAGA: You then retired from the South African Air Force at the end of February 2009 having served the Air Force for over 41 years.

COL (RET) VILJOEN: That is correct Mr Chair.

20 MS RAMAGAGA: In March 2010 you were approached by the South African Air Force to serve in a reserve force capacity to assist in finalisation of the LUH Project, that is the project in respect of which you had undertaken a tour to Italy. Yes?

25 COL (RET) VILJOEN: Mr Chair that is correct. Unfortunately the project had not had a project officer for about 18 months prior to me being called up and there were issues that needed to be closed, certain components that had been identified

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during the operational test and evaluation had to be improved or were not procured during the initial phase and we had to initiate this. There were certain deficiencies on the helicopter from the production line that had to be rectified and they  
5 required someone with managerial skills and I was recalled from my happy retirement to proceed with the task.

MS RAMAGAGA: Thank you Colonel. In actual fact when one looks at the fact that you were recalled in or around 2003 and almost seven years later you were then recalled as a  
10 reserve to the Air Force to come and assist, complete what you had started. Now you indicate that during the period no one was then absorbed to finalise the project, is that correct, is my understanding correct?

COL (RET) VILJOEN: Mr Chair that is not one hundred percent  
15 correct. When I handed over the project responsibilities at the end of 2003 there was a replacement project officer appointed, he, however, resigned and a third project officer was appointed who served on the project if my memory serves me correctly, for about 18 months before he was transferred and  
20 unfortunately they required someone once he'd left to take over the reins and I was requested to do this.

MS RAMAGAGA: Now ordinarily what were the projections for the finalisation of this project?

COL (RET) VILJOEN: Mr Chair to the best of my knowledge,  
25 and I'm speaking under correction it actually falls in the

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ARMSCOR domain who do the contract administration, so I would like to say that I'm not a hundred percent sure, but to the best of my knowledge the programme should have included, being concluded, around about 2010, 2011, however, as I mentioned that during the operational test and evaluation certain deficiencies were identified and new requirements were identified and some of them had to be rectified, so the original acquisition plan contents had been concluded, so that would have been phase one of the project was concluded, so I think one should not look at it as the programme just dragging on, there were certain phases that were concluded and the system has been over to the Air Force, however, the Delta or additional requirements are in the process of being resolved at this stage.

MS RAMAGAGA: Now you do indicate in your *Curriculum Vitae* that you are still being utilised in the post of finalisation of the LUH and this work you do discharge for three days per week and also you are charged with the responsibility of being utilised by the Directorate Helicopter System for one day per week, can you just elaborate on these posts, as to what it is that you are doing, what you are expected to do with your assistant as a Reserve Force member?

COL (RET) VILJOEN: Mr Chair in the project environment as I mentioned there are certain contracts that need to be concluded, there's certain reports that have to be generated to

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wind up the programme. At the end of the day the end user would like to know whether the product actually meets what was specified in the User Requirement and we are in the process of generating this report which is called a Deviation Report, there  
5 was a report written in 2002 but that report was generated on information obtained from the original equipment manufacturer because at that stage the LUH had not flown, so we now have to go and validate that the original deviation report is correct and if not, updated so that the end user, the Director  
10 Helicopter Systems is happy to accept the product in its totality.

MS RAMAGAGA: Now how are you utilised by the Directorate Helicopter Systems?

COL (RET) VILJOEN: Mr Chair as mentioned I served one day  
15 a week at the Director Helicopter Systems, the Directorate is without a doubt the busiest directorate in the Air Force, it's a very complex system to manage, to the best of my knowledge the general has helicopters at five or six different basis, he has five different helicopter types and the management of this  
20 directorate requires all the skills he can muster and for that reason I assist there for one day a week.

MS RAMAGAGA: Colonel you have an experience in excess of 20 years in management of projects, will you please give the Commission an overall experience of your managerial position,  
25 especially in respect of the projects?

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COL (RET) VILJOEN: Mr Chairman I must admit that I was extremely lucky during my Air Force career to have managed as many programmes as I have, some people never get the opportunity, I had multi-opportunities. As mentioned I started  
5 off with the Super Frelon upgrade programme avionics upgrade programme, I was then involved in the Oryx programme which ended up being an extremely complex programme, there was industrialisation, there was development and as the requirements changed the original Oryx was meant to be purely  
10 as a land-based helicopter, the requirements changed and we developed two models that could operate at the coast, some of them only had flotation gear, others had flotation gear and blade folding, which was quite unique at that time, and then because as I mentioned we were in support of the Department  
15 of Environmental Affairs and the Puma's that they had were, I wouldn't say incapable but were lacking in the cargo carrying capability, the project was requested to modify two Oryx to be able to operate off the SA, correction the MV Agulhas so that it had blade folding, flotation gear, heating for the main and tail  
20 rotor blades to be able to operate in the extreme conditions as found in Antarctica.

Thereafter I was very lucky to be involved in the Maritime Helicopter Programme and in parallel to this on the LUH programme and when it came to the negotiation phase I  
25 was unable to multiplex sufficiently to give sufficient inputs

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into both and then I relinquished the maritime capability  
helicopter and stayed with the LUH. And just to give a brief  
overview on the responsibilities of a project officer, primarily  
we are working with State funds, so sound financial  
5 management is imperative. Secondly we are not building this  
capability for ourselves, we are building it for the organisation  
and it is our responsibility to ensure that what the project  
officer delivers is what the customer actually wants, and that  
will go through depending on the type of programme, go  
10 through the whole engineering developmental cycle which will  
go through the development, the industrialisation, the  
production, the testing and when I say testing that could be  
development testing plus the operational testing, validating the  
training systems, validating the spares and logistics support  
15 package that was delivered, and also to ensure that the  
training aids satisfy the end user requirement.

As General Bayne mentioned earlier one of his  
primary assets or major assets are his two simulators for the  
Hawk and Gripen and the LUH didn't have the luxury to acquire  
20 a full mission simulator, this was in the original requirement,  
however, due to budget constraints the LUH now has a cockpit  
procedural trainer, it has, however, got a very good visual  
database and the visuals are so good that introduction and  
continuation training for night-vision goggle operations can be  
25 carried out on the procedure trainer. I think that sums it up Mr

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Chair.

MS RAMAGAGA: Thank you Colonel. Now I'd like to focus your attention to the medals that were awarded to your good self. Those appear in page 13 Appendix "A". Page 13 Chair.

5 May I proceed? Thank you. Now firstly I'll take you through the medals that you would acquire which I will refer to as the formal medals that you would acquire by virtue of the years that you have spent with the Defence Force. Now in, you have acquired the UNITAS Medal which is a medal to commemorate  
10 the unification of defence forces and armed forces in the Republic of South Africa.

COL (RET) VILJOEN: Chair, that is correct.

MS RAMAGAGA: This medal would be conferred upon all members that were integrated into the South African National  
15 Defence Force.

COL (RET) VILJOEN: Mr Chair that is correct, and that was during 1994.

MS RAMAGAGA: Now you were also awarded the Medal of Good Service, that is the bronze, which is normally awarded to  
20 the permanent force members of the South African National Defence Force who have rendered the service for 10 years' qualifying service.

COL (RET) VILJOEN: That is correct Mr Chair.

MS RAMAGAGA: And then you have also been awarded the  
25 silver medal which is awarded to permanent members of the

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Force for a period of 20 years.

COL (RET) VILJOEN: That is correct Mr Chair.

MS RAMAGAGA: The gold medal which is awarded to the permanent force members who have rendered a service for a period of no less than 30 years.

COL (RET) VILJOEN: That is correct Mr Chair.

MS RAMAGAGA: And the medal for Distinguished Conduct and Loyal Service which would be awarded to permanent force members who have rendered 40 years' qualifying service.

COL (RET) VILJOEN: That is correct Mr Chair.

MS RAMAGAGA: Chair, it has just been brought to my attention that it is now 13h00.

CHAIRPERSON: We'll now adjourn and we'll come back at 14h00. Thank you.

**(Commission adjourns)**

**(Commission resumes)**

CHAIRPERSON: Can the witness confirm that he is still under oath?

COL (RET) VILJOEN: I do.

CHAIRPERSON: Thank you.

MS RAMAGAGA: Thank you Chair. Colonel Viljoen, I would like to take you back to page 13 of bundle I, in that page we are dealing with your, the medals that were awarded to you. Now shall you inform the Commission about the award of the Southern Cross Medal?

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COL (RET) VILJOEN: Mr Chair the citation for the Southern Cross Medal reads:

*“To officers of the SANDF for exceptionally meritorious service and devotion to duty”.*

5        However, my award was for something totally different, I mentioned earlier that I serve at 30 Squadron in Cape Town and our secondary role was in support of the MV Agulhas to resupply Antarctica and the islands. On a specific voyage in 1985 we were anchored off the island of Gough Island, it's a  
10        British island, however, we have a set of meteorologists that are based there all year around and are relieved once a year and they serve a very important role.

             I'm sure most people realise that our weather systems, frontal systems originate in the central Atlantic and  
15        then move towards our coast, across the country and then play themselves out in the Indian Ocean, so there are the two stations, one at Gough Island so they are able to track the intensity of the storm so that by the time it reaches our shores the meteorologists have a pretty good idea of what to expect in  
20        the storm and then see how it plays out and then eventually it's measured again when it crosses the Prince Edward Islands at Marion Island.

             We were onboard the ship at the time and they were going through the normal processes of discharging diesel fuel  
25        to the island and unfortunately the wind was blowing very

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strongly and the captain realised that the hose was getting fairly close to his propeller system, he activated the bow thrusters which is a mid-ship's control system that would move the ship left or right and unfortunately when moving the ship to the one side the suction caused this hydraulic hose to become entangled around the propeller, we were stuck and fortunately I had my social diving gear called Scuba Self-Contained Breathing Apparatus onboard and the captain approached me to see if I could possibly dive and see if I could untangle the canvass hose.

Contrary to safety regulations one should never dive alone, but I was the only one there with diving cylinders, so my colleague floated above the water to try and give me top cover as such and I went down to see whether this was possible. Upon exhaustion of the compressed air in my cylinder I was suffering badly from hypothermia but the hose had still got the better of me.

That evening we had a discussion with the engineers and we were able to modify the firefighting cylinders to be able to accommodate our self-breathing apparatus which is a totally different system to the firefighting system. The next morning having recovered from hypothermia I went down again and we tried a different approach and fortunately just before I'd exhausted the fuel and very close to hypothermia we got the hose untangled.

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Now the implications of that were twofold, had we not got the hose off there was a possibility that the ship would have to be towed back to Cape Town at exorbitant costs and possibly delays because it would have to go into dry dock to have the repairs done, or secondly if it steamed back under its own steam it would definitely have had to have gone, undergone some form of major maintenance in the dry dock and this would have possibly not allowed the ship to do the annual Christmas changeover of personnel and resupplies in Antarctica, so I'm sure there would have been an alternative but I would hate to have thought or to think what the implications would have been if we hadn't been able to get the hose untangled, and for that episode I was awarded the Southern Cross Medal.

15 MS RAMAGAGA: Right. Thank you Colonel. Shall you now inform the Commission about the Commendation Medal that was awarded to you?

COL (RET) VILJOEN: Mr Chair, the two awards I'm going to allude to now changed names over the time, I was initially awarded the Chief of the South African National Defence Force Commendation Medal which is awarded to all ranks of the SANDF for service of a high order, that was in 1992, the name of this medal has subsequently changed and it is now known as the Military Medal Merit, I say again, Military Merit Medal, and when they changed the name you are allowed to include the

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MMM behind your name as part of your title. I was lucky enough again to be considered for a re-award of this medal, at this stage it was known as the Military Merit Medal and instead of awarding a second medal I was awarded a bar to my medal, 5 so I'm extremely lucky to have the medal and bar.

MS RAMAGAGA: Colonel, will you please explain as to what is meant by a Service of a Higher Order?

COL (RET) VILJOEN: Mr Chair in my opinion this would be service rendered over and above what is expected of an average to above average individual. 10

MS RAMAGAGA: Right, thank you. Will you then please inform the Commission about the Pro Patria Medal that was awarded to you?

COL (RET) VILJOEN: Mr Chair the Pro Patria Medal is awarded to SANDF servicing members serving in the operational area of the former South-West Africa. 15

MS RAMAGAGA: And the Southern Africa Medal?

COL (RET) VILJOEN: The Southern Africa Medal is awarded to SANDF personnel participating in operations outside of South Africa and Namibia from the 1<sup>st</sup> of April 1976 and before March 1990. 20

MS RAMAGAGA: And the final medal, the General Service Medal, will you please inform the Commission about that medal?

COL (RET) VILJOEN: This, contrary to the Southern African 25

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Medal which is for services outside of the borders of South Africa the General Service Medal is awarded to members participating in internal military operations and I was awarded the award for that.

5 MS RAMAGAGA: Thank you Colonel. Shall we then proceed to page 14 of bundle I. In page 14 we have information on the awards that were awarded to your good self, shall you first then ... Should I proceed Chair? Thank you. Will you then inform us about the ATLAS Chairman's Outstanding  
10 Performance Award?

COL (RET) VILJOEN: Mr Chairman Atlas was the ATLAS Aircraft Corporation which is now part of the Denel Group and at that stage they were the prime contractor for the industrialisation, development and build of the Oryx medium  
15 transport helicopter and they have an annual award known as the ATLAS Chairman's Award for Outstanding Performance and I was lucky enough to be awarded this for my achievements on the Oryx programme in 1989.

MS RAMAGAGA: Colonel, will you please just give us more  
20 detail on this outstanding performance relating to the Oryx for which you were then awarded an award?

COL (RET) VILJOEN: I'm not sure I understand the question, is it for the ARMSCOR award or the ATLAS award?

MS RAMAGAGA: Thank you, I'm still on the ATLAS award  
25 because you just indicate that you received this award because

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of your outstanding performance in respect of the Oryx, now will you give us some more detail as to what that related to in particular?

COL (RET) VILJOEN: Mr Chair we had to go back and realise  
5 that the country was under embargos and sanctions at the time and the Military desperately needed an upgrade to the Oryx medium transport capability hence the identification of the Oryx medium transport helicopter. In order to ensure that we were able to build the 50 helicopters that were specified a lot of  
10 back- engineering had to be done and the processes that were followed to industrialise major components like the engines, the gearboxes, the blades, both main and tail rotor blades, the fuel tanks, the windshields, the armour plated seats as well as a large portion of the avionic suite were all parts of the  
15 requirement addressed under the Oryx programme and I was the project officer for that coordinating all these activities.

MS RAMAGAGA: The Oryx, was it the product of South Africa?

COL (RET) VILJOEN: Mr Chair the engineering portion was  
20 predominantly South African and major parts of the components were manufactured locally, however, some of the components like the airframe and the undercarriage were acquired, if I may use the word.

MS RAMAGAGA: Is it correct that South Africa had acquired  
25 the license to manufacture some of the components of the

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Oryx?

COL (RET) VILJOEN: Unfortunately that could not happen at the time, we were under sanctions and no one was prepared to give us the manufacturing rights and that's why I mentioned  
5 there was a lot of back-engineering that had to be done in order to industrialise these components, so the achievements of the engineers at the time was absolutely outstanding.

MS RAMAGAGA: Colonel when you say you contributed towards the back-engineering of this equipment does it mean  
10 that you also contributed towards the development of the engineering of this equipment?

COL (RET) VILJOEN: Mr Chair, not being an engineer I wasn't able to contribute towards the engineering discipline per se, however, my task was to ensure that I managed all these  
15 processes and different disciplines to ensure that we all arrived on the assembly line in time to start the production.

MS RAMAGAGA: Thank you. Shall we then proceed to the next award that relates to the Armaments Corporation of South Africa Chairman's Award which was awarded in 1989?

COL (RET) VILJOEN: Mr Chair this is very similar to the  
20 ATLAS award, however, I would see it as a few notches higher because ARMSCOR was doing activities or carrying out activities with all the major arms contractors in South Africa, however, to mention ATLAS being one of them, so there were  
25 many more projects to be evaluated and compete against each

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other for this prestigious award and I was again one of the four members that received this award from ARMSCOR, there was the ARMSCOR programme manager, there was the Denel programme manager, there was the Foreign Procurement manager and myself were all joint recipients of this prestigious award which I think is possibly, and I think even still today possibly the one of the most prestigious awards to receive in South Africa.

MS RAMAGAGA: Right, thank you. Shall we then proceed to, will you please proceed to inform us about the Arthur Childs Award.

COL (RET) VILJOEN: Mr Arthur Childs was a Canadian that loved aviation and fortunately for us had a soft spot for South Africa and he realised at the time that we had brilliant engineers and I'm not saying that we still don't have them, but at that stage under the trying circumstances under which they had to work, which was the embargo, made their tasks even more difficult and he decided that he would form a trust and have an annual award called the Arthur Childs Award to a Member who had Contributed to the Advancement of Military Aviation in South Africa through Innovation, Originality and Ingenuity in that particular year, and I was awarded for my achievements or received that award for my achievements on the Oryx programme that year and that was in 1991, so it was an ongoing process from 1989, 1989 and then again luckily in

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1991 with three different prestigious awards.

MS RAMAGAGA: Thank you Colonel. Shall you then proceed to inform the Commission about the Denel Project of the Year Award which was awarded in 1993 or for that particular year?

COL (RET) VILJOEN: Mr Chair if I can mention any shortfall in the Oryx per se is the size of the cabin, it has exceptional power-to-weight ratio capability and if you had to travel long distances you would have to make sure that there were fuel tanks inside the fuselage, this would limit the cargo that you were able to carry, or the personnel or the troops, so somehow we had to think of an alternative solution by not having the tanks inside the fuselage and somehow they had to be outside and it was as vague as that.

We sat down and we investigated the options, eventually we came up with a solution which they called Sponson tanks which fit onto the side of the helicopter just above the undercarriage, and in fact the undercarriage retracts into these fuel tanks and this extends the range of the Oryx by almost two hours with both sets of Sponson tanks, left and right. And again we had to back-engineer because we weren't, did not have the license to manufacture these and the composite facility owned by Denel in the Western Cape back-engineered this, I was test flown, found to be successful and we went into production and today it is the standard fit onto the

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side of each Oryx in the Air Force at the moment and for that I was awarded the Denel Project of the Year.

MS RAMAGAGA: So, this award relates to your contribution to the improvement on the capabilities of the Oryx?

5 COL (RET) VILJOEN: Mr Chair as mentioned it improved the operational capability and flexibility of the Oryx by allowing the cabin to be unobstructed with fuel tanks so that it could be utilised for either freight, passengers or troops, the answer to the question is yes.

10 MS RAMAGAGA: Thank you. Now will you then please inform the Commission about the South African Air Force Command Council Honourable Commendation?

COL (RET) VILJOEN: Mr Chair, as you can see when this was awarded the sanctions have been lifted and it was now 1996  
15 and I also mentioned earlier that it was the Air Force's responsibility to supply helicopters and crew for the MV Agulhas to carry out her tasks and as I mentioned earlier that the Puma helicopters that were bought by the Department of Environmental Affairs were not completely incapable but they  
20 were lacking, is the better word, in their performance to carry out the tasks when in the Antarctica because the department was building an new base in the mountains which required excess power and the Puma's were unable to give that power and the Air Force was approached by Department of  
25 Environmental Affairs to see if an Oryx couldn't be converted to

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accommodate blade folding, which we had already done for the Military Puma's, correction Military Oryx and also to incorporate a heating system into the main and tail rotor blades and fortunately Eurocopter and had done this development for its operations in the North Sea where they required Super Puma's to fly in icy conditions and because the dynamics of the Oryx are similar, very similar to the Super Puma we acquired this technology from France and Denel again had to back-engineer it because the Oryx was unique, they couldn't take the drawing from the Super Puma because they were not compatible and this task was carried out in an incredibly short time because they, we were only tasked in June the one year and they wanted it to sail for Antarctica by December the same year, so we were under extreme pressure and in an environment that we'd never been before, but fortunately we had big brother to hold our hands and who was very supportive and we were able to make sure that both helicopters embarked on the Agulhas in December that year. And for that I received the South African Air Force Command Council Honourable Commendation.

MS RAMAGAGA: Right, thank you Colonel. Can you just enlighten the Commission who the big brother was that assisted you?

COL (RET) VILJOEN: Mr Chair as I mentioned it was no longer the sanction days and Eurocopter was able to communicate with

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us and supply us with components and his engineering capability helped us tremendously to ensure that we met the timescales. I don't think the complexity would have been overwhelming to our engineers, it must mean that the time was very much against us and Eurocopter helped us in order to meet these timescales.

MS RAMAGAGA: Thank you Colonel. Will you then please turn over to page 15 of the bundle and inform the Commission about the flying award that was awarded to your good self.

10 COL (RET) VILJOEN: Mr Chair while I was still based at 30 Squadron in Cape Town we had an emergency call from a ship that was off the Zululand coast that had a critically injured seaman onboard. The Squadron was tasked because of the range of the Super Frelon and also its hull is built similar to the hull of a ship, so had you experienced a problem you would be able to ditch it in the water and because of the extreme distance that we had to travel from the shore it wasn't deemed feasible to use a Puma from Durban, so we ferried the Frelon from Cape Town to Durban, refueled, flew as far as Richardsbay, refueled again and then we realised that there was a tropical cyclone approaching and we had no choice but to press on, and we flew through the storm and fortunately the, or through half the storm because the ship was miraculously in the eye of the storm, the centre of the storm.

25 We rescued the seaman, we hoisted a doctor down,

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he went and stabilised the crewman, we hoisted him back and unfortunately we then had to re-penetrate the storm which the helicopter, neither us liked very much I must say. By the time we reached land we'd already lost one of the engines and for some unknown reasons we were picking up heavy vibrations on the controls. We weren't quite sure what the problem was, so we carried out an emergency landing on the beach and just before we landed we lost the second engine, fortunately the Frelon has three engines, so we were able to land on one.

When we got out to inspect the cause of this vibration the storm had been so severe that our, the coating or the covering for the hydraulic pipes had been completely corroded away and for that rescue I received the South African Air Force Good Show Award for Flying Abilities.

MS RAMAGAGA: Right, thank you Colonel. Shall we then proceed to page 16 of the bundle. Now please inform the Commission about the paper, your paper that was presented in London in 1995.

COL (RET) VILJOEN: Mr Chair I'm sure you'll agree that without the Oryx this testimony would have been very short, so what happened is Denel or that stage it was still ATLAS Aircraft Corporation were trying to market the Oryx concept to Puma operators to give them a better hot and high operating capability, an ideal opportunity for them to market the product so that they could tell people how good it was, what was

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achieved on the product and its type of performance was to present the paper at an international helicopter conference.

They applied and was successful in being received by the Shepard Helicopter Symposium in London and the chief executive officer of ATLAS Aircraft Corporation approached me to read the paper at this symposium. I did read the paper, it was extremely well received, there were numerous questions from various operators, both military and civil, all interested in the capabilities of the Oryx, it was extremely well received, however, I'm not quite sure what the reason was but Denel was never ever successful in marketing the product.

MS RAMAGAGA: Colonel you say a lot of interest that came related to the capabilities of the Oryx, in other words your audience saw you as an authority in relation to the development of the capabilities of the Oryx, hence the interest.

COL (RET) VILJOEN: Mr Chair I would like to think that they were more interested in the product but I must say that the presentation was extremely well received, there were some very complex questions asked and there was a lot of interest shown and I was very surprised when no follow-on orders came from this marketing exercise because the questions that were asked and the enthusiasm shown by specifically the military operators surprised me that it never reached fruition.

MS RAMAGAGA: Colonel on page 17 of the bundle this just illustrates the promotion or your ascendancy within the Force.

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In 1987 you were promoted to the rank of the lieutenant colonel.

COL (RET) VILJOEN: Mr Chair that is correct. When I was offered the post of the Oryx Project Officer it went hand-in-hand with promotion, so apart from the challenges of the project it was also financially and career beneficial to me.

MS RAMAGAGA: And in 2001 you were promoted to the position of a colonel and you retained that position until you retired and also as a Reserve Force member you continued to hold that position?

COL (RET) VILJOEN: That is correct Mr Chair, I was promoted to the rank of full colonel in 2001 and after having gone on pension I was called back into the Reserve Force and fortunate enough to retain my rank in my present capacity.

MS RAMAGAGA: On a lighter note Colonel you are married and you have two children.

COL (RET) VILJOEN: I am, I'm very happily married to my wife Charmaine. Very interestingly when I first met her she had an Indian passport, she was born in India, grew up in India and cooks a fantastic curry. We have two children, a boy and a girl and I'm very blessed with both of them.

MS RAMAGAGA: Thank you Colonel, I'm sure Charmaine would like to hear this. Shall we then proceed to the evidence that you are going to present which is contained in page 2 of the bundle. Mr Chair and Commissioner Musi the bundle that

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we are using is still bundle I. Are you there Colonel? Okay. Now this statement or this evidence that you are going to present should be read in conjunction with the Joint Report on the Strategic Defence Packages dated the

5 14<sup>th</sup> day of November 2001, this forms part of bundle I and the information in this stage relates to the period from when you were appointed as the user specialist officer in early 1990, then to being seconded to ARMSCOR, the official procurement agency of the Republic of South Africa as the Light Utility

10 Helicopter Project Officer for the acquisition of the A109 LUH from 1999 until 2003, and to some extent we may also lead evidence on the present situation, especially in rel..., or the present status in relation to the project. Now will you please inform the Commission about there is inception of the concept

15 of to either upgrade or replace the Alouette.

COL (RET) VILJOEN: Mr Chair, the Alouette III was designed by the French Company called Sud Aviation, now known as Eurocopter, and it was designed in the late 1950's and the South African Air Force acquired their first Alouette III in 1962.

20 So, by the time I started the investigation into the possibility of upgrading or replacing the Alouette III they had already been in service for about 30 years and as a previous colleague alluded to the acquisition cycle from the first drafting of one of the documents namely the Required Operational Capability, until

25 the product is brought into service could be anything from 10 to

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15 years.

So, we realised that we had to work in all earnest to make sure that the Alouette III process commenced timeously so that we did not run into a problem by not having a light  
5 helicopter capability in the Air Force. One of the other issues that was looked at was at the time it was indicated that Sud Aviation or Aerospatiale as they later became were intending to close down the Alouette III production line and this would have complicated our support lines, it would have led to long lead  
10 times and possibly extra costs and maybe one of the options to have resolved that would have been to have bought out large quantities of spares which the Defence Force couldn't actually afford at that stage because if you remember 1990 was when we underwent one of the first major financial cutbacks, so we  
15 didn't have the money or the luxury to invest in this capability, so we had to carry out the study to see whether it could be upgraded and if not, then it had to be replaced.

MS RAMAGAGA: Right, thank you Colonel. Maybe before you proceed with your evidence may I just bring it to the  
20 attention of the Chair and Commissioner Musi that there is an Alouette chart, Alouette III Acquisition Documentation Chart which we have requested, it's page 106 but it is put on the left hand side of your bundle. Now this chart has conveniently been put there because it will be used as a navigation that  
25 informs you as to where, what the witness was doing at a

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particular period as he has already alluded to the fact that the replacement process was commenced in or around 1992, the rest of the chart will be actually speaking to what he is going to talk about in relation to the various important time periods.

5 May I then proceed? Thank you. Colonel, you have alluded to the fact that at some point in or around 1992 you commenced with the Alouette III Replacement Capability Study. Will you please inform the Commission about what would the study involve and maybe before you deal with that can you confirm  
10 that you were actually appointed the chairperson of this study that was due to be undertaken?

COL (RET) VILJOEN: Mr Chair that is correct. Maybe the terminology would not be the chairperson but I was appointed the leader of this investigative group which I had to glean from  
15 the different arms of service to ensure that the capabilities were identified across the DOD spectrum and when I mention this I talk from the infantry personnel, medical personnel, Special Forces, artillery, we spoke to the Navy to see if they had any requirements for their ship deployments, especially in  
20 the hydrographic research environment, so all the arms of service were included in the study and the conclusion of the study was, the information was incorporated into version 1 of the User Requirement Statement and this information which I will go through later was used to measure whether the Alouette  
25 III could be upgraded to satisfy these requirements and I quote

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from the Staff Target which is page 93 and I don't think it's necessary because it's one sentence that I'm going to be reading, not to refer to that, I will just read it, it says:

5                   *"A study on the feasibility of upgrading the Alouette III conclusively established that the costs involved and any upgrade of performance or operational capability would not be cost effective and not feasible".*

10                   So that concluded any possible Alouette III upgrades. The next activity was to proceed with the acquisition process and I will continue with that later.

15                   MS RAMAGAGA: Right, you said you studied the replacement capabilities or rather may I just rephrase, you undertook the study relating to the replacement of the capabilities. Now can you just inform the Commission as to how long this study took?

20                   COL (RET) VILJOEN: Mr Chair because this was an over and above task that I had, my full task was managing the Oryx Project, it took considerably longer than we would like to have done and because it wasn't always possible to have representatives from all the arms of service attend our work sessions so sometimes it had to be repeated with the members that weren't present at the first session, so to put a timeframe to that would be difficult but I would have said that it was in  
25                   the order of about 12 months that it took us to formulate this

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requirement.

MS RAMAGAGA: Right, thank you. You mentioned in paragraph 5 of your statement that the study was concluded in or around mid-1994, that actually tallies with what you are saying when you say it took about 18 months or so. In actual fact you referred to 1994 as the period during which the user requirement statement was concluded. Can you inform the Commission about this User Requirement Statement, as to what the contents of the statement would be. Maybe at this stage it's not yet necessary for you to give the detail but it is important that you give information to an extent necessary so that the Commission can follow the evidence that you are going to present in due course.

COL (RET) VILJOEN: Mr Chair, as I said earlier the information resulting from this study was incorporated into the User Requirement Statement for the future Alouette replacement and if it meets with the chair's approval I could go through some of the requirements that were deemed necessary to be able to be fulfilled by the Alouette III replacement and they are contained in the User Requirement Statement.

MS RAMAGAGA: Colonel yes, ...

CHAIRPERSON: I'm sorry, maybe we need to start with, can you tell us what is a User Requirement Statement?

COL (RET) VILJOEN: Mr Chair it's a comprehensive document that is compiled by the end user that is the baseline for all

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your contracting and specification requirements leading towards the project and once the capability has been delivered the User Requirement is the major document used to measure the final product before it is handed to the end user, so in other words the User Requirement is mirrored against the product to ensure that it meets these requirements.

MS RAMAGAGA: Thank you Chair. Colonel, maybe to simplify issues relating to the User Requirement Specification document I'd like to take you to page, just a minute, please bear with me, page 22 of the bundle, that is actually the first page which outlines the date on which, the version that was adopted as well as the period which the adoption was done. Can you just inform the Commission about the important, or highlight the important factors or information that appears on this page?

COL (RET) VILJOEN: Mr Chair as we mentioned earlier the first iteration of the User Requirement was already completed in 1994, that was version one. By the time it was finally approved, which was in March 2000 we were at version 5, so we had gone through various iterations, various deliberations and as the requirements were changing so the URS had to be updated and hence the long delay from version 1 to version 5 before it was finally approved.

MS RAMAGAGA: Thank you Colonel. Now I would like to take you to page 27 of the bundle which also deals with the

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User Requirement document, I will read into the record clauses 1.1 and 1.2 in order to can enlighten the Commission better about, page 27, and the clauses that I would like to read into record Commissioner Musi and the Chairperson is clauses 1.1 and 1.2 on this page. Have you found the page, the relevant page? Right, thank you. Now clause 1.1 reads:

*“This document establishes the South African Air Force User Requirement Statement for the light utility helicopter”.*

10 1.2:

*“This is the only authentic approved document which states the user requirement. This document establishes the only baseline against which all programme activities, specifications and contracts should be developed, produced and financed”.*

15

Now I, do you confirm that those are the contents of those paragraphs?

COL (RET) VILJOEN: Mr Chair, I do. One additional point that doesn't come out in that paragraph and which is of paramount importance that I alluded to earlier is that the product delivered is measured against this particular document and that is very important to ensure that what you contract for comes out of this document so that the product delivered will satisfy the user's requirement.

25 MS RAMAGAGA: Right, thank you Colonel. And shall we

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then proceed to page 31 and I'd like to read into the record paragraph 2.1 which describes the scope of this document, 2.1 reads:

5

*"This User Requirement Statement defines the LUH system in terms of the capabilities, performance, design, development, support, training and test requirements".*

10

And lastly I'll, lastly for now Chair I will, I would like to refer you to page 32 of the bundle, in particular I would like to read into the record Clause 8.3 which falls under the "Design Philosophy":

15

*"The utilisation of the LUH will in all probability be utilised in peacekeeping operations and will possibly require specialist surveillance, navigation and self-protection equipment".*

You do confirm that these are the contents of this statement, those extracts that I have referred to?

20

COL (RET) VILJOEN: Mr Chair, that is correct. I would like to refer to the same page 32 of the bundle, 8.2 which gives an overarching description of the roles and capabilities that the LUH would have to fulfill.

25

MS RAMAGAGA: Right thank you Colonel. Will you please proceed to present evidence on these papers, in particular the User Requirement Statement. There is an extract that forms part of the bundle which you can then proceed to refer the

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Commission to as we deal with specified and important provisions of the User Requirement document.

COL (RET) VILJOEN: Mr Chair I've taken the liberty of taking extracts out of this fairly long document known as the User Requirement and will only address certain salient points that I believe are relevant and interesting to this forum to at the end of the day confirm that what was delivered to the Air Force actually satisfies the User Requirement. If I may Mr Chair I'll read paragraph 8.2, that I alluded to earlier:

10                   *"In the White Paper on Defence the Military is required to assist the South African Police Services ..."*

Sorry.

MS RAMAGAGA: Sorry about that. Chair, the extract that the colonel is reading from is contained in pages 18 to 21 of the bundle and Colonel as you refer to a particular page just highlight the page so that the Commission can follow. Yes, you may proceed Colonel.

COL (RET) VILJOEN: My ...

20 MS RAMAGAGA: We are ... May I just indicate that the colonel, the paragraph that he was referring to is in page 18 of the bundle.

COL (RET) VILJOEN: My apologies to the Chairperson and the Commissioner for not waiting until you were ready. May I continue Sir? Thank you. I read paragraph 8.2 of the User

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Requirement which says:

5           *"In the White Paper on Defence the Military is required to assist the South African Police Services in certain of their tasks such as border patrol, combating drug trafficking, cattle rustling, stock theft and the detection of illegal immigrants. The possibility of selecting equipment that could satisfy national requirements should be strived for".*

10           I stay on page 18 and I go to paragraph 9.1, this is a brief description of the light utility helicopter capability, it's defined as a twin-turbine multipurpose helicopter in the 3-ton class, that is fairly self-explanatory, it will have two engines, they will be turbine engines, not piston and it will be in the order of 3-tons, it doesn't necessarily have to be exactly but in that 15           order, and the reason why the two engines were specified is the Alouette's capabilities were noted that it's not capability and bad weather capability being a single engine was very, very limiting hence the requirement for a twin-engine helicopter.

20           *"The LUH shall be cleared for single pilot instrument flight rule operations both day and night. The helicopter shall be suitable for night-vision goggles".*

25           I did mention that earlier that I was, had been introduced to this earlier, so I was aware of the benefits that night-vision

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goggles give any military institution and even civilians are starting to use night-vision goggles to enhance their night operations at the moment.

5

*“The helicopter will be capable of fulfilling the basic generic helicopter tasks such as communication flights, hoisting and cargo slinging and various operational system configurations are envisaged in order to satisfy the specific roles”.*

10

Some of the equipment will be alluded to later but it will be an infrared thermal imaging capability, it will have a search light and self-protection weapons and I will allude to that in more detail later in the document. We go to, still on page 18, paragraph 12.1:

15

*“The light helicopter will be used at 87 Helicopter Flying School in the basic configuration ...”.*

And the reason why that is mentioned in the basic configuration is for *ab initio* training, *ab initio* being the introduction to helicopter flying and then:

20

*“The helicopter will be able to accommodate specialist role equipment for the operational role and also for advanced training”.*

So there has to be flexibility available to the helicopter so that it can be used in the basic role and in the operational role. Still on page 18 paragraph 15.1:

25

*“The primary role of the SANDF is to prepare itself*

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*in order to deter any external hostilities”.*

This has been alluded to on numerous occasions earlier.

*“The requirement for the helicopter support in the nine regions is about to increase”.*

5 Remember this was written in 1995, we had just announced our  
nine provinces and we believed that the humanitarian support  
that this helicopter could lend to the peoples of the country  
could be extremely beneficial to all. With the emphasis as I  
mentioned, on humanitarian aid the RSA is also going to be  
10 called upon more and more to render regional assistance which  
has been mentioned before, we’ve operated in flood relief  
operations, we’ve supported various election initiatives and the  
company has benefited tremendously from those political  
initiatives.

15 Considering the role of the light helicopter is to  
play in the new South Africa and the region as a whole the  
majority of the utilisation of the helicopter would possibly be in  
the secondary role and not in the primary role as mentioned in  
the beginning of that paragraph. Still on page 18 paragraph  
20 15.3:

*“The LUH should be capable of assisting other arms  
of the service and Government departments in  
accomplishing their tasks and/or missions”.*

MS RAMAGAGA: Right, thank you Colonel. This study for  
25 the replacement of the Alouette III was undertaken in/or around

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1992, that was long before the adoption of the White Paper or even the Defence Review. Now the URS was only approved in the year 2000, now are you able to indicate as to whether the URS that was adopted in 2000 had some influence or element  
5 of the SDPP's in it, in its finalisation or not?

COL (RET) VILJOEN: Mr Chair I would say that the URS was not influenced by the SDPP's, this was a requirement that was formulated and moulded into the final document based on the Defence Review and also the White Paper earlier, so the  
10 capability regardless of what acquisition process was going to be used would remain the same.

MS RAMAGAGA: Right, thank you. Shall you then proceed to deal with the, with paragraph 6 of your statement which refers to you or which states that in 1995 you drew and  
15 compiled a Required Operational Capability document for the replacement of the Alouette? Now I would invite you Colonel to also talk about the elements or components of this ROC, Required Operational Capabilities document because the, so much has been said about the document but I don't think by  
20 now the Commission has been able to get it in clear terms as to how this document is developed, what would go into that document, the factors taken into consideration and you being the person that drew up this document will be in a better position to can bring clarity to that.

25 COL (RET) VILJOEN: Mr Chair the ROC is the first document

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that is written when a programme is started and this is normally known as the kick-start mechanism to initiate a programme. The information that I started reading, and just go one step back, it's a very basic document that doesn't specify too many requirements, there's definitely not funding mentioned in the document, so it basically is just a document to register the requirement, the documents that follow this document are the ones where the technical information and funding is required as we go through the evolutionary process.

5  
10 MS RAMAGAGA: Will I be correct to say that the ROC is actually just actually just an internal document that would be used within the arm of service or does it get elevated to other forums?

COL (RET) VILJOEN: Mr Chair, I'd prefer not to go into too much detail on the process, this I'd like to leave to the specialist Captain Jordaan who will be testifying later, however, to answer the question the document is approved at the highest level, it used to go to the Operations Staff Council, however, to the best of my knowledge the Chief of the Defence Force has decided that it will be approved at the Military Command Council, but I would like to hear what Captain Jordaan has to say on that, maybe I'm wrong but I think I'm right.

20  
25 MS RAMAGAGA: You mentioned in your statement Colonel that the problem statement highlighted the operational

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requirement and how the Alouette III was incapable of fulfilling certain operational roles and the Requirement Statement detailed the performance and equipment requirement as approved by the Air Force Project Committee in November  
5 1994. Now does it mean that this, that the requirement were, the requirement had been preapproved by the Air Force Project Committee in 1994, was the document also informed by that approval of the Air Force Project Committee?

COL (RET) VILJOEN: Mr Chair that is correct, the information  
10 that was approved was incorporated into the ROC, otherwise the ROC would not have had status.

MS RAMAGAGA: Now this document was then used to form the basis against which the Alouette III replacement was specified. Now it is correct that the White Paper on Defence  
15 was approved in May 1996.

COL (RET) VILJOEN: Mr Chair that is correct.

MS RAMAGAGA: Now soon after the ROC was approved you commenced with drafting the Staff Target, can you give the Commission full information about what the Staff Target is, how  
20 is it developed? Mr Chair, the Staff Target is contained in the bundle in pages 92 to 105 but as I have mentioned earlier on the extract of the relevant portions of the document have also been drawn and they will appear in a separate page, so you will not have to be paging from this page to that page. Will you  
25 proceed Colonel please.

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COL (RET) VILJOEN: Thank you Mr Chair. The information contained in the Staff Target is basically, most of the information or ... Most of the information contained in your User Requirement Statement except that it will have finances, it will have quantities and it would have envisaged time scales and a possible first order cash flow, apart from that the technical content is extracted from your URS. So, if the Chair would like me to continue with an abridged version of the URS which are the ones contained on page 18 to 21 I can continue, I have, I believe that not all the items are relevant, so it should take too long, if I go through that then the forum can get the idea of what should be contained in the Staff Target, because the Staff Target is an extremely important document insofar as that before the Staff Target is registered the activity is not registered as a project and the person managing the activities is known as a user specialist, however, once the Staff Target is promulgated the process is elevated to project status, a codename is allocated to the project and the user specialist, not necessarily the same individual could become the project officer, alternatively an alternative individual will be appointed as the project officer.

MS RAMAGAGA: Thank you Colonel, you may proceed to refer to the relevant extracts of the URS.

COL (RET) VILJOEN: Mr Chair, I refer to page 18 of the bundle and I as I mentioned I didn't think that all the issues there

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were relevant, however, in a contracting model it would be considered completely differently because if things are not included in the contract you are definitely not going to get what you think you're going to get. I'd like to go to paragraph 27

5 "Survival Requirements" and just mention a few of the issues that were considered during the project phase because they were contained in the URS.

The airframe we deemed to, had to be crashworthy to an extent that having hit the ground at considerable speed

10 there would be no loss of life and limited injury to the crew or inhabitants of the aircraft, this was one of the deliverables, it was done thoroughly and was eventually certified the Civil Authority that it complied to the specifications.

In order to ensure that the air crew survived special

15 crashworthy seats were developed in accordance with the URS, this just mentions that there shall be this capability, the specifications are taken and once the URS has been approved then the ARMSCOR process takes over and that is, the requirement is converted into a specification and these

20 specifications are given to the contractor and he will then satisfy the requirement in accordance with these specifications.

And another requirement that we deemed necessary being a military helicopter, we required self-sealing tanks, this entails that should a projectile penetrate the tank and the size

25 of the projectile up to and including a 7.62mm round the tank

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would seal itself completely and you would be able to continue without any spillage of your fuel, so those are just some of the safety issues that were looked at. If we can go to paragraph 28 "Transportability":

5                    *"The product shall be capable of being ..."*.

CHAIRPERSON: I'm sorry, on which page are we?

MS RAMAGAGA:     What page?

COL (RET) VILJOEN: It's the same page, page 19 Chair.

MS RAMAGAGA:     Just below paragraph 27.

10 COL (RET) VILJOEN: Page 19 URS 28.

MS RAMAGAGA:     Have you found the page Chair?

CHAIRPERSON: Yes.

MS RAMAGAGA:     Thank you. You may proceed Colonel.

COL (RET) VILJOEN: Thank you. Mr Chair the transportability  
15 entails that whatever product is procured shall be transportable  
in the C130 Hercules which is our stalwart transport aircraft in  
the South African Air Force and this is possible. If we go to  
URS32.1 in the Design Philosophy a very fancy word for an  
autopilot is the automatic flight control system and in order to  
20 reduce the workload of the pilot this was deemed necessary so  
that he could operate in a single pilot environment in all-  
weather conditions both day and night and this capability was  
delivered.

                  URS33, "Navigation System", an integrated  
25 navigation system was specified and delivered, it has global

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positioning inputs into the NAV system which is validated by a Doppler system. A Doppler system is a pulse beam that is beamed from the antenna to the ground and received back and the difference in the transmitted and received beam gives an indication of the mobility of the unit, and using those two in conjunction gives the helicopter a very accurate positioning capability.

In order to simplify as I mentioned earlier that the pilots use a hardcopy of a map there's an electronic digital map in the aircraft and this can be scaled to various scales depending on the type of operation that is being undertaken and this is also being delivered with the helicopter. Obviously let's, staying on page 19 URS31, correction, 34.1, correction, 34, there must be communications onboard and 34.1 specifies that it must have a very high, an ultrahigh and a high frequency range set of radios with a frequency modulation and a marine band capability, this was delivered.

Still on page 19 URS39, a forward looking infrared capability, this is a role or mission capability that is not necessarily always installed onto the aircraft and is only used for specific missions, some of the missions that we have successfully carried out is using this to be able to detect the temperature difference between a human or an animal and the environment and it has been extremely successful in certain operations.

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Still on page 19 URS40, "Self-Protection Machine Gun", this requirement has always been in the URS, however, the project team were unable to get the specifications to define the requirement in more detail and you will see later that this capability is still being evaluated, they have been, the installations have been bought, qualified and they are using weapons from the inventory of the Air Force and they will be cleared for self-protection weapons on the light utility helicopter.

Still on page 19 URS43 1.1 "Floatation System", this is so that the helicopter can be used in a maritime environment and you will see later that this activity is also still outstanding even though the floatation bags have been delivered. Turn to page 20, URS43 1.2 "Cargo Sling", the cargo sling should be capable of lifting weights of at least 600 kilograms, there shall also be a hoist capable of lifting 270 kilograms.

The difference between the two, the cargo sling is a capability that a cable hooks to the bottom of the helicopter and attached to that is your cargo, so you would go into the hover, hook up the cargo and at reduced speed be able to move it from point A to point B. The hoist is different, it's similar to the winch that is fitted onto the bumpers of the 4x4 off-road vehicles at the moment and that should be capable of lifting 270 kilograms, the reason for this specification is that if you

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are lifting two persons out of the water with full clothing on this would possibly be close to the maximum weight of this capability. Still on page 20 URS43 1.3:

5

*“The LUH shall be capable of carrying medical stretchers and must be able to accommodate two of these stretchers”.*

10

And they should be the ones currently used in the SANDF. This has been cleared and it does have that requirement. Something else that was acquired was the OEM stretcher interface which is used for emergency medical evacuation in the civil environment which makes it very compatible for us to operate with the civil ambulance services so that the stretchers between us and them are also common.

15

Still on page 20 URS44 “Personnel and Training”, the initial training courses that were done by the project in conjunction with the OEM was we did two courses of four pilots each and we did two courses of eight technicians each, so that was the core training capability in the Air Force and most of the students on those courses were instructors themselves, so they were trained to train the rest of the members that were going through the LUH line. This has subsequently changed and there is a dedicated training facility which is co-located to the Helicopter Flying School in Bloemfontein and all the training is done through this subunit in Bloemfontein.

20

25

Still on page 20 URS44.2.6 “Training Aids”, training

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aids weren't really specified in the contract because without getting too technical in order to define your training aid requirements a training needs analysis which is a very complex analysis system needs to be completed and the outcome of that training needs analysis will determine your training aids requirement. The training aids requirement eventually concluded that we should have a computer based training capability for both air and ground crew and initially in the contract a full mission simulator was included and however with the budget constraints this was removed and supplemented with a cockpit procedural trainer which is up and running at the training centre in Bloemfontein.

As I mentioned earlier the cockpit procedural trainer has very good visuals and also a very good visual database should I say, with very good resolution and it's so much so that night-vision training can be carried out on this capability. If we turn the page to page 21 URS45, ...

MS RAMAGAGA: Is it 54? URS54?

COL (RET) VILJOEN: We are URS45 on page 21. Did I miss a page?

MS RAMAGAGA: Is dit 54? Is dit 54?

COL (RET) VILJOEN: 45.

MS RAMAGAGA: 45. So, I will ask for the indulgence for the amendment of that number 54 to read 45. Thank you. You may proceed.

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COL (RET) VILJOEN: Thank you Mr Chair.

JUDGE MUSI: 45 is on the other page.

MS RAMAGAGA: The first URS on the first line Commissioner Musi, it's written 54 and you say it's 45.

5 JUDGE MUSI: But there's 45 on page 20.

MS RAMAGAGA: Page 21.

JUDGE MUSI: On 20 there's 45, URS45 on page 20 at the bottom.

10 MS RAMAGAGA: Okay right, thank you. I'm actually at page 21. Sorry about that, my apologies.

COL (RET) VILJOEN: Mr Chair I'll continue page 21, now that we have resolved the dyslexic 45 and 54 we continue to URS45 "Logistics" URS. This was drawn up by using the methodology of a logistics support analysis and the outcome of this was as mentioned in URS48:

*"An integrated logistics support system was delivered".*

URS54, "Technical Data and Documentation", this was delivered in electronic format and is updated regularly. URS55 "Infrastructure and Facilities", considering that the LUH was being deployed to units where the Alouette previously served there was no necessity for major infrastructure development, so what happened was only the LUH specific requirements were addressed by the project and these are in the process of being completed at the moment.

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URS58 "Ground Support and Test Equipment", this was all delivered and is in inventory. URS63 "Preparation for Delivery", I'd like to expand on this a little bit if I may Mr Chair, this activity has been completed for all the equipment  
5 contained in the original acquisition plan, that has been handed over and formally accepted by the Director Helicopter Systems, however, some of the additional requirements identified during the operational test and evaluation phase still need to undergo OT&E and some of them are currently undergoing OT&E.

10 I can mention these five outstanding activities, the first one we did mention earlier was the self-protection 7.62 weapons, the secure communication suite, operations with the infrared observation system where it is slaved to the search light. At the moment both systems can be used individually but  
15 not slaved and this is in the process of being evaluated, it makes it so much easier if the two can be co-located rather than have to manipulate each one individually.

The night-vision capability of the LUH was evaluated under the operational test and evaluation, however,  
20 there is a slight disagreement on the Standard Operating Procedures and we have appointed *the* most experienced night-vision goggle pilot who is qualified on the 109 to revalidate that report and to make recommendations on the NVG SOP's that will be promulgated by Director Helicopters, possibly in  
25 the next two months.

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Then the last activity that is outstanding is the ship-born clearances and this has taken far too long and we have been in discussions with the Navy and hopefully that this activity will be completed before the end of the calendar year.

5 Mr Chair, that's all I have on the URS.

MS RAMAGAGA: Thank you Colonel, shall you then revert to page 3 of the bundle, still on paragraph 7. You mention that soon after the ROC was approved you commenced to draft the Staff Target and the Staff Target was then approved by the  
10 Armaments Acquisition Board on the 16<sup>th</sup> day of May 1996. Mr Chair, the Staff Target document is contained, as I have stated, in pages 92 to 105 of the bundle. Will you please explain as to what would be contained in the Staff Target and you are also at liberty to refer to the various extracts of the  
15 Staff Target which are contained in page 120 of the bundle. That page appears as the last page because it was a late consideration addition, so it is not in line with the rest of the document, it is disjointed from the rest of the document. You may proceed Colonel.

20 COL (RET) VILJOEN: Mr Chair on page 93 of the bundle you will see it's the submission regarding the South African Air Force Staff Target 3/1995 Project Flange, the Alouette III replacement. As I mentioned earlier all the technical information contained in this document stems from either your  
25 URS or from your required operational capability. The

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differences as I mentioned in this document is that budgets are referred to, estimated budgets I should emphasise and that budgetary cash flows are identified and time scales are identified. Apart from that everything else that's in the URS will be contained in the Staff Target, so I'm not sure if there's anything specific that we need to go through in the actual document.

If we go to page 98 there you can see the budgetary estimates for the various activities and as we can see that here they are still referring to the 60 that were contained in the study done by the Air Force as well as the ... No, in fact at this stage the Defence Review didn't exist, so it was obviously based on the findings of the project study, the 60 aircraft that was approved.

And then just below that you can see the in-year estimated cash flow and that gives the Planning Department an indication of how to position the budgets. If you look at "Infrastructure and Manpower" on page 99 I mention that this capability or this, yes this capability is replacing the Alouette III and that's why when they talk about infrastructure and manpower they will be making use of both of these that were there to support the Alouette with minor changes for the specific product.

And then on page 100 is the approval and it is for the Staff Target to replace the Alouette III, continuation of the

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acquisition process until up to the submission of the Staff Requirement, it gives a ceiling baseline, an authority to spend a certain amount of money on the drafting or reaching finalisation on drafting of the Staff Requirement. Thank you Mr  
5 Chair.

MS RAMAGAGA: Right, thank you Colonel. After the approval of the Staff Target by the Armaments Acquisition Board on the 16<sup>th</sup> day of May 1996 the Project Flange was then registered.

10 COL (RET) VILJOEN: That is correct Mr Chair, as I mentioned earlier up until then there was an Alouette III replacement programme staffed by a user specialist officer, with the approval a project officer is appointed and the programme is registered with the codename as a project, in this case it was  
15 registered as Project Flange.

MS RAMAGAGA: Thank you Colonel, before we proceed to deal with paragraph 8 I'd like to mention that the paragraph is quite involved Chair and there is no possibility that we can finalise the paragraph, the contents of that paragraph today  
20 and I would request that we adjourn as it is now 16h00.

CHAIRPERSON: We'll adjourn until tomorrow morning. Thank you.

**(COMMISSION ADJOURNS)**