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CHAIRPERSON: Good morning everybody. Advocate Mphaga, Ms Ramagaga.

ADV MPHAGA: Thanks Chair, we are ready to proceed. We have Mr Cornelius Johannes Ferreira who will be giving evidence today. Chair, we will rely on two bundles, Files 1 and File 2, and we will proceed with the evidence of Mr Ferreira and then at paragraph 5 of the statement then we will do that paragraph by way of a presentation, but we hope that we won't be able to do that today. Thanks Chair.

10 **(Witness is sworn in.)**

**WITNESS NUMBER 4 (ARMSCOR) : MR CORNELIUS JOHANNES FERREIRA (Hereinafter referred to as "MR FERREIRA"), GIVES EVIDENCE UNDER OATH**

15 **EXAMINATION IN CHIEF:**

ADV MPHAGA: Thanks Mr Ferreira. Mr Ferreira, you have made a statement which you were going to use to give your evidence before this Commission on the 28<sup>th</sup> of October 2003, is that correct?

20 MR FERREIRA: Yes.

ADV MPHAGA: If you look at page 31 of the statement, is that your signature appended to that statement?

MR FERREIRA: Yes Chair.

ADV MPHAGA: You are ...

25 CHAIRPERSON: I'm sorry Advocate Mphaga, can you

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perhaps start all over again, there was something wrong with the recording.

ADV MPHAGA: I'll start again. Mr Ferreira you have made a statement for which you were going to give your evidence, is that correct?

MR FERREIRA: Yes Chair.

ADV MPHAGA: On page ...

MR FERREIRA: Yes?

ADV MPHAGA: On page 31.

10 MR FERREIRA: Yes Chair, that is my signature .

ADV MPHAGA: It's your signature? Okay.

MR FERREIRA: Yes Chair.

15 ADV MPHAGA: Now if we go to page 1 of your statement, paragraph 1 you indicate to the Commission that you are currently in the employ of the Armaments Corporation of South Africa SOC. Ltd., that is ARMSCOR, is that correct?

MR FERREIRA: Yes Chair.

20 ADV MPHAGA: And further you indicate that before and during the Strategic Defence Package acquisition you were in the employ of ARMSCOR, is that correct?

MR FERREIRA: That's correct Chair.

ADV MPHAGA: And you are going to give your evidence in regard to the relevant aircraft acquisition for the SDPP insofar as it relates to your employment at ARMSCOR, is that correct?

25 MR FERREIRA: That's correct Chair.

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ADV MPHAGA: Now I see that you have provided the Commission with your *Curriculum Vitae*, that is on page 32 of the bundle, is that correct?

MR FERREIRA: That's correct Chair.

5 ADV MPHAGA: Now I want to take you through your *Curriculum Vitae* briefly. On page 32 you indicate that you were born on 14 June 1953 and you received a BSC Electronic Degree from Stellenbosch University in 1978 and a Master in Business Leadership from the University of South Africa in  
10 1985, can you confirm that?

MR FERREIRA: I can confirm that Chair.

ADV MPHAGA: It appears that you commenced your career, engineering career at the Barlows Electronic Systems in Midrand in 1979 where you were involved in various  
15 electronic projects for the Defence Force, is that correct?

MR FERREIRA: That's correct.

ADV MPHAGA: Was it your first employment at Barlows Electronic Systems?

MR FERREIRA: Yes, it was my first employment.

20 ADV MPHAGA: I see in 1981 then you moved to Atlas Aircraft Corporation where you were seconded to the South African Air Force in 1982 as a system engineer on the mirage F1 initially at 3 Squadron and then at 1 Squadron, is that correct?

25 MR FERREIRA: That is correct.

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ADV MPHAGA: Will I be correct to say that Atlas Aircraft Corporation was the previous name for ARMSCOR?

MR FERREIRA: Atlas was part of ARMSCOR, it wasn't the previous name, it was one of the affiliates and then it was split  
5 in the late 1980's if I remember correctly, as a company under the Department of Trade and Industry.

ADV MPHAGA: And I see that your main task as a system engineer was to supply technical and system expertise on the Mirage F1 Navigation and Weapon Delivery Systems, is that  
10 correct?

MR FERREIRA: That is correct.

ADV MPHAGA: From 1984 then your tasks were expanded to include the management of the Avionic Maintenance Depot on AFB Hoedspruit on behalf of the Air Force.

15 MR FERREIRA: That is correct.

ADV MPHAGA: In 1986 you were seconded to Air Logistic Command in an advisory position. What does that, did that entail?

MR FERREIRA: I was assisting the Air Command in the  
20 maintenance of the Mirage F1 aircraft looking at the failure rates, I was also then the head of both the F1 sport teams, the one at 3 Squadron and the one At 1 Squadron for that period, so I had to do the task from (indistinct) and then re-travel to Hoedspruit to oversee the work done there and also going to  
25 Air Force Base Waterkloof to see the work done there by my

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team members.

ADV MPHAGA: I see in 1986 then you returned to Kempton Park as a system engineer to represent Atlas at an Israeli company, can you just inform us what that means?

5 MR FERREIRA: Chair, in the late 1980's we had aspiration of building our own aircraft in South Africa, fighter aircraft, and what we did there is I went to an Israeli company looking after possible avionics architecture to go in this aircraft, we also had a team at Atlas, they were looking at the alternative  
10 architecture and when I returned we combined these two architectures and studies into a simple proposal for our future fighter aircraft.

ADV MPHAGA: And I see that you say, you mention that you assisted there with the concept definition and development  
15 of the avionic system specification and integrated three different avionic architectures into a single solution.

MR FERREIRA: That is correct Chair.

ADV MPHAGA: And you say you also assisted with the adaptation of a user supplied Value System used as criteria for  
20 evaluation to a more useable and understandable system that was applied during the tradeoff studies. Can you explain for us?

MR FERREIRA: This Value System we are speaking here about is not the Value System we refer to RFI's and RFO's, this  
25 Value System is making decisions on architecture, so it's a

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different high level Value System that's more technically based, it was based on the user's environment but you had to make tradeoff studies, do I have all my sensors integrated into a single controller or do I distribute it, how do I communicate architectures, there were different architectures and we put all this together in the Value System as part of the tradeoff for an avionics architecture and that is what's meant that we convert it.

The user thinks in operational terms, he would like to communicate over certain distance with people, we had to put that requirement into technical aspects of what frequency, what ranges, what else he wants to do while he is communicating, how many channels and all that we put into a Value System for the architecture because that determines your architecture, one or two radios, radios with standby frequencies and things like that.

ADV MPHAGA: I see in 1988 you were transferred on ARMSCOR's request to ARMSCOR as a programme manager in the Aircraft Division responsible for the Cheetah Programme and you also managed the closure phase of the Cheetah-D and E Programme which included the local development of the (indistinct) replacement of the radio altimeter video camera and the PAC computers [sic] on the test equipment. Can you just expand on that Mr Ferreira?

MR FERREIRA: In 1988 the Air Force or the Cheetah-C

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programme was initiated. I was transferred from Atlas to ARMSCOR to replace one of the members of the team that went over to the company as an ARMSCOR representative. I took over his task, at that time he was looking at the Cheetah-D and E aircraft and when I arrived there one of the items they have already contracted was for a hot mockup, and I took away the contract from an overseas supplier and placed it on a South African supplier and this hot mockup was delivered in time, and hot mockup is like an aircraft wiring system where you can put on all the avionics of the aircraft and you can test it as a system and where you don't have the avionics, the one replaceable unit you can simulate or stimulate that input digitally and what we also did during that time is that the computers they used in the test benches became obsolete and we replaced those computers with PAC computers, it was so successful that on the Cheetah-C the same computers were also replaced by a South African company with PAC computers.

ADV MPHAGA: Now the closure of the Cheetah-D and E Programme, was it, when the Cheetah had reached its lifecycle or when was it?

MR FERREIRA: The closure from an ARMSCOR side is when the system was hand over to the Air Force for operation, so we closed the programme phase in that period.

ADV MPHAGA: Now you say in 1992 you were transferred to the Logistic Division where you were responsible for the

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definition and implementation of the System Support Supplier Concept. What was that?

MR FERREIRA: In 1992 the Air Force had a maintenance policy where they would send things to a repair depot to be repaired and they had representatives at the repair depot who monitored the repair only. We introduced a new system concept where we state to support an aircraft it doesn't only go around repair, it goes around all the logistic elements and you should give a company the full responsibility for maintenance and encourage him to improve the reliability of the product. From business sense, the company, the more times an item is returned for repair the more money it makes but if you are contracting for availability, the less the item is returned for repairs the more profit he would make and we also introduced a concept of a profit sharing where we say that you are going to make profit, we don't want all the profit, let's share this advantage in a better support cycle, we also brought in the concept of not only the repair of items but all the soft issues around it like training, technical publications, engineering activities and this was called the product support system.

The idea was that we would have established it at lower levels, companies, and eventually we will (indistinct) Denel or Atlas to be the total system support supplier for all the aircraft.

ADV MPHAGA: And you further mentioned that you defined

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the logistic support requirements based on Western methodologies for a Russian derived engine plan to be used in the South African fighters.

MR FERREIRA: We are back to the period where we were  
5 thinking of building our own fighter aeroplanes, we also had the problem with the engines in our aircraft that they were not the best performance engines and one of the options was we were looking at converting a Russian fighter engine to fit into our Mirage F1 aircraft and the Cheetah aircraft. The problem is  
10 that this aircraft could not fit as is, you had to repackage the engine in order to fit, I was part of that programme, I was looking after the logistics, how to maintain this engine and you must remember this was done at the end of the Russian communist period and the way that their philosophy worked is  
15 they built thousands of these engines and they were not really concerned about the cost of maintaining these aircraft engines because to them cost was not a factor, they did not understand some of the concepts, we speak about reliability and maintainability and things like that. The question is why, why  
20 do you worry about it?

In our case we did worry about it because it increased your operating cost and we applied that Western standards onto these engines, see how we can maintain that engine according to our Western philosophies of time between  
25 overhauls and reliability.

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ADV MPHAGA: Thank you. In 1995 you returned to the Aircraft Division to participate in the evaluation of the new fighter and trainer aircraft as offered in the Strategic Defence Alliance with specific emphasis on the logistics, can you  
5 explain that?

MR FERREIRA: In 1995 the SDP Packages was not even a conscionable idea. When I returned to the Aircraft Division we were looking at advance fighter trainer and we were busy with the acquisition process of that trainer which in our submission  
10 I will go further into. Later the strategic packages were initiated and I was part of the team right up to the end of the evaluation process for both the LIFT and the ALFA and I was also then the programme manager on the LIFT Programme.

ADV MPHAGA: And then you say since 2000 you had been  
15 the ARMSCOR programme manager for Project Winchester and I think we'll deal with that later, am I correct?

MR FERREIRA: That is correct.

ADV MPHAGA: And then in 2000 you were also responsible for the acquisition of the Hawk Lead-In Fighter  
20 trainer aircraft which we'll deal with in detail later.

MR FERREIRA: That is correct.

ADV MPHAGA: Now you mentioned that you've received the ARMSCOR Chairman Award nomination for the development of an Integrated Avionic Test Bench for the Cheetah-D and E  
25 programme in 1991 and the Chief of the Air Force

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Commendation for Outstanding Performance to the Air Force in 1992. Can you explain those two awards?

MR FERREIRA: The first one was, that's hot mockup bench I spoke before, it was done by a South African company, they were forced to make use of an oversea, the original supplier of the avionic systems, at the end of the day the work was totally done by them in South Africa and these benches were then deployed to air force bases where they were used and as I said it also act as a filter bench which means if you suspect something on an aircraft is not working you can action, take it to the bench, you can test it on the bench and either confirm it's unserviceable or you can put it back into the aircraft, therefore saving cost by unnecessarily sending an item to a repair depot.

The Chief of the Air Force Commendation was based on my work I've done on the product support supplier, I was the first person that, I initiated with one of the Air Force colleagues, we sent out the first Request for Proposal, we placed the first contract (indistinct) and up until in the late 2000 this was the maintenance policy followed by the South African Air Force.

ADV MPHAGA: Thank you very much. And we note that you are married, you have two daughters also.

MR FERREIRA: That is correct.

ADV MPHAGA: Thank you Mr Ferreira, then we can go

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back to page 1 in the bundle. I take it you were present when Captain Jordaan and Mr David Griesel gave evidence?

MR FERREIRA: I was present when Mr Griesel gave evidence, I was not present when Mr Jordaan gave evidence  
5 but I did speak to him.

ADV MPHAGA: And Mr Griesel did take us through different committees, boards and councils that were established for the purpose of the SDPP and such as the SOFCOM, the IONT and the ASB. Am I correct?

10 MR FERREIRA: You are correct Chair.

ADV MPHAGA: And these committees were involved in the acquisition processes in respect of the equipment for the SDPP's, am I correct?

MR FERREIRA: That's correct.

15 ADV MPHAGA: And to a certain extent you were also involved with these committees during the acquisition process of the aircraft.

MR FERREIRA: I was not involved in all these committees except with the (indistinct) Control Council or board.

20 ADV MPHAGA: But you interacted with the committees at some stage?

MR FERREIRA: As I said in my statement as far as relevant I will refer to the involvement and engagement of such committees, boards, councils for the purpose of the aircraft  
25 acquisition but I was not personally involved in these boards.

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ADV MPHAGA: Thank you for the explanation. Now on paragraph 2.3 before you got into the details you want to take us through the summary of the Fighter Programme Requirements Approval History which is on page 3 of your statement.

MR FERREIRA: Chair, ...

ADV MPHAGA: Maybe if you can turn to page 3 of our statement Chair.

MR FERREIRA: Chair, unfortunately we do not have this on an overhead projector, so I need to walk you through this diagram. In terms of the colours on the diagram, the yellow is the ASTRA, the blue there is what we call the Ukhozi, the green is the Lead-In fighter trainer and the orange would have been the future Medium Fighter Aircraft. Now this diagram goes back to July 1994 when we started the programme or the process of the AFT, the AFT was an Advanced Fighter Trainer Aircraft and the AFT would have replaced the Impala Aircraft, the Impala MK 1 and MK 2.

A future programme called Kambro would have replaced the Mirage and the Cheetah aircraft later. Now we followed this process, we went out on a Request for Information, we went right to a point where we already had placed a contract for the AFT when the process was stopped, and I will speak about that later in my submission.

Then in August 1997 the Air Force changed its

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strategy to the so-called two-tier, as I said in my statement I will not make any comments on Air Force strategy except where it influenced the acquisition process. In November, so when they changed to the two-tier strategy we changed the Ukhozi or the AFT requirements to also replace the Mirage F1 as part of the process, so we made the capability, increased the capability. This then became the Advanced Light Fighter Aircraft, the ALFA.

In November they changed the strategy back to a three-tier system and we introduced the Hawk aircraft, the Lead-In fighter trainer. All I can say is ever since the 1960's when we were flying Mirage aircraft there was a brief period of about three months where the Air Force were considering a two-tier system, it wasn't the standard and we're back to our normal three-tier as originally done.

In my submission I'm going to speak about the AFT, the period up to when the SDP Packages were introduced, then I'm going to address the Advanced Light Fighter Aircraft, the ALFA, and I will also address the Lead-In fighter trainer, so in fact I'm addressing two of the package deal aircraft in my submission. Thank you.

ADV MPHAGA: Thank you very much Mr Ferreira. Now in paragraph 2.4 you indicate that the supporting documentation identified in this statement is referenced according to the number of the documentation already supplied to the

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Commission on a memory stick during July 2012 but you further mentioned that all classified documents have been declassified, is that correct?

MR FERREIRA: That is correct.

5 ADV MPHAGA: You mentioned that there has been masking of data on this statement which was only applied to vehicle performance, sensor performance, weapons accuracy and detailed cost, can you explain in detail?

MR FERREIRA: Commissioner, you usually have a copy of  
10 the attachments which indicate what has been masked and you are also able to see the data (indistinct) below that. The masking was applied with vehicle performance, one of the reasons is that with this information your enemies can get advantage with all of these about how good a vehicle perform.  
15 I want to say that the actual performance of the vehicle might not necessary be that that's been reported on the open networks, especially when you get to sensor performance and if I speak about sensor performance I'm' speaking about the radar, the radar mode, how good the radar is those things are  
20 uniquely to the radar and the radar is a highly sensitive piece of equipment in the aircraft.

When I speak to weapons accuracy I speak about how good, how accurate we are throwing bombs or how accurate the cannon is shooting on an aircraft against there's  
25 R1 million which is the term you measure accuracy in and have

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a major impact on your planning, so we would not like to have this information in the public domain because it gives our enemies advantage about how good are aircraft are performing.

5 And then the last one is detailed cost, the overall programme cost is open public knowledge and I think it was reported in all the other reports, but a detailed costing is masked for the reason that even if you lost this bid you would not like your competitors to know what you have bid because the next time there's a competition going, if I know what my  
10 competitor bid, then I know what to put in my bid and then I'm taking out the competitiveness of offers, so for that reason the detailed costing we have masked but not the overall costing because from overall costing you can't actually make, understand what people are asking, for instance for logistics or  
15 for training and things like that. Thank you.

ADV MPHAGA: So if I understand you well is that the masking of data is only done in those documents that may be given to third parties but the commissioners have been given unmasked data, am I correct?

20 MR FERREIRA: That is correct.

ADV MPHAGA: Now you mention in paragraph 2.5 that where statements:

25 *"Where reference is made in the statements to documents not prepared by ARMSCOR and/or processes outside the Project Team's responsibility*

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*it is for information purposes and will not be discussed in detail or attached to this document”.*

Can you elaborate on that?

MR FERREIRA: That is correct. If I need to discuss the detail of these documents I'm going to speculate, I wasn't there, they are not our documents and therefore I will mention them for the relevance of my statement but I cannot do any discussions or answer any questions on those documents.

ADV MPHAGA: Thank you Mr Ferreira. Paragraph 26 you mention about the uniqueness of the acquisition of the aircraft system in that the aircraft acquisition involved a single request for proposals to all potential bidders, can you just take us through that?

MR FERREIRA: Commissioner, the difference between an aircraft system and a sea-based or a land-based system is that if a sea-based or land-based system fails they still at least are on sea or on land, they can go nowhere. If an aircraft fails you can lose the aircraft, the aircraft can fall in a built-up area, there can be lives lost, so a special emphasis is placed on aircraft to make sure that it can operate safely in the environment, in order to do that we appoint a single contractor that needs to, that takes responsibility for all integration (indistinct) on the aircraft as well as to certify this aircraft to international standards. Even if we provide them (indistinct) equipment they take the responsibility of integrating that into

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the aircraft and at the end of the day they (indistinct) their product. We make sure that this aircraft can operate safely in our environment and to achieve this we need a single contractor to do that, the moment we employ another contractor  
5 or do something else to this aircraft the main contractor is not responsible anymore for his product. Thank you.

ADV MPHAGA: But you mentioned also that the potential contractor was expected to supply a statement confirming that its potential aircraft offerings meet all the specifications and  
10 safety requirements of the South African Air Force.

MR FERREIRA: There's a process followed in the aircraft environment where the design of a contractor goes up in his organisation to the chief engineer of the company who issue a certificate of design with limitations and that certificate of  
15 design to contractor then states that this aircraft meets the specifications and can safely be operated in a specified environment, if you operate the aircraft out of that environment the contractor warranty will fall away.

I also need to mention if I speak about the system  
20 I'm also speaking about the ground support systems, the training, the documentation, the maintenance policy that's been applied, all this is underwritten by the main contractor, if you change your maintenance philosophy or processes then you are actually releasing him from his liability about how these  
25 aircraft operate, as long as I operate this aircraft according to

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his approved maintenance policies using his ground support equipment I am covered.

I must also mention that the flight simulator is, we treat it as an aircraft, is also very important because some of the risk or the hazards that you can experience in an aircraft can only be trained on the ground in a simulator and the contractor must underwrite that training also.

ADV MPHAGA: Paragraph 2.7 you deal with the constitution of the Project Ukhozi Control Board which was established in October 1995 and its constitution approved on 25 March 1996 and that it was replaced at some stage by an Air Combat Programmes Control Board and the Integrated Project Team regularly reported to Ukhozi Control Board and then you also deal with the functions. Can you take us through that Mr Ferreira?

MR FERREIRA: We as an integrated ...

CHAIRPERSON: I'm sorry Advocate Mphaga, just for my own understanding you know when I went through the statement of this witness I realised that at times he refers to Project Ukhozi Control Board, at times to Project Ukhozi Control Council, I'm not quite sure which one, which of the two words, council or board, is the correct one, or is it one and the same committee that he is referring to?

ADV MPHAGA: Thanks Chair, I'll let him explain it.

CHAIRPERSON: Thank you.

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MR FERREIRA: Chair, if you look on page 34 of the constitution they speak, the constitution of the Project Ukhozi Control Board and the ... Are you there Sir? The heading says "Constitution of Project Ukhozi Control Board", then the first  
5 paragraph say:

*"The Council were known as the Project Ukhozi Control Board".*

So I'm using them interchangeable, sometimes they refer to the minutes of Ukhozi Control Council and sometimes they refer to  
10 Ukhozi Control Board, but the numbering follows on that, so it's the same item.

CHAIRPERSON: Thank you.

ADV MPHAGA: You can continue with your explanation.

MR FERREIRA: Chair, the functions of the Ukhozi Control  
15 Board was taken out of the constitution, I'll go through these functions, they determined the overall programme strategy, they approve the evaluation process, they issue guidelines and directives to the Joint SAAF ARMSCOR Project Team, as I said we were an Integrated Project Team, they make major  
20 milestone decisions, they make other decisions with reference to other matters that fall outside the capabilities of the Joint SAAF ARMSCOR Project Team, the Integrated Project Team.

Now very important, they served as the interface  
between the Joint SAAF ARMSCOR Integrated Project Team and  
25 the Defence Control Council or the Defence Structures. What

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this means is we reported to them, we gave feedback to them and anything upwards were their responsibility to communicate into the defence environment, we did not do that, we might on their behalf assist them with that but we actually had no right to go speak to these other boards and whatever they are. They exercise overall control of activities of the SAAF ARMSCOR Project Team, the IBT and I believe that is all the functions that they adhere to.

ADV MPHAGA: If you proceed to page 34, that is the constitution of the Project Ukhozi Control Board it also makes provision of who are the members of that team, am I correct?

MR FERREIRA: That is correct.

ADV MPHAGA: I see on page 35 in respect to ARMSCOR it indicates that there was an executive general manager, general manager Aeronautics, senior manager Aircraft, programme manager Ukhozi. Were you also part of the ARMSCOR team?

MR FERREIRA: We as the Integrated Project Team attended all these meetings, we, as I said we were a real Integrated Project Team consisting out of the project officer from the Air Force, the project manager from ARMSCOR as well as the different members, so when we attend these meetings most of them I did attend personally but as a team we always attend these meetings, so I can't comment on what happened at some of these meetings.

ADV MPHAGA: Now let's proceed to page 4 of your

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statement, paragraph 3.1. You mention that in the 1990's the South African Air Force Strategy made provision for the replacement of the Impala Aircraft, Project Ukhozi and the replacement of the Cheetah with a Medium Fighter Aircraft, can you take us through that paragraph 3.1 and 3.4?

MR FERREIRA: As I mentioned in my drawing on page 3, when we started the programme we had the ASTRA as our *ab initio* trainer, we start learning how to fly, we had the Impala Aircraft MK1 which is a dual seater and a MK2, and we had Cheetah and F1's. So, the Impala were reaching the end of their life and they need to be replaced, so Project Ukhozi initially was for the replacement of the Impala Aircraft and it was called the AFT, Advanced Fighter Trainer, the Cheetah aircraft at that time would have been replaced by Project Kambro and it would have only been initiated around 2005 as the Cheetah aircraft were planned to be removed from service around 2012, so that's what I say, and on this section I'm speaking about AFT which is for the replacement of the Impala MK1 and MK2 aircraft.

ADV MPHAGA: Now you also mentioned there that the Staff Target number 2/1994 for the acquisition of the AFT was approved by the Minister of Defence on 18 October 1994 and then also you talk about the approval of the Staff Requirement and funds which were allocated, is that the process that must be followed?

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MR FERREIRA: This was still the process that was followed, the Staff Target as I say was July and the staff requirement which gave more information in 1995, this also allowed us to spend some money on the programme for programme management.

ADV MPHAGA: Now you will see that you also make reference to the Interim Project Study Report that is on page 38 of the bundle. What was the Interim Study Report all about?

MR FERREIRA: Chair, we went out on the, we get some information, we had 22 responses, we went through a process looking at them, eliminating some of them at a very high level, we then ended up with nine contenders which we asked for further information, I would like to go to inlay 3 page 37 and I would like us to walk through this executive summary because this covers the data that we received on the RFI phase of the programme.

ADV MPHAGA: You mean page 38?

MR FERREIRA: Page 37, page 38 yes. Can I go ahead? Some of the things I say here might be a repetition of what has already been said but I think for completeness let's relook at them. The objective of this executive summary is to give a very brief overview of the Project Ukhozi Interim Project Study Report, it includes a summary of the evaluation process, it provides the result of each of the evaluation phases. The executive summary concludes in the list of contenders

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recommended to receive a Request for Proposal or a Request for Offer, as Mr Giesel said proposal offer are interchangeable. Then I would like to move down to paragraph 2.1:

5                   *“Project Ukhozi involves the replacement of 83 Impala MK1 and MK2 aircraft with a multi-mission jet trainer light fighter referred to as Advanced Fighter Trainer aircraft (AFT)”.*

On page 39, and I ...:

10                   *“The Project Team approached all suppliers that they could identify that could partially satisfy the requirement with a Request for Information. From the replies received 22 potential contenders were identified. After gathering additional information*  
15                   *from the contenders and applying a high level selection criteria the 22 contenders were reduced to a shortlist of nine options that warranted further investigation”.*

Now we were looking for an aircraft that must be jet propelled  
20                   and have tandem seats. Some people offered us engines that are propeller driven, so it's outside our requirement, we were also looking for aircraft that at least met the performance of the Impala if not better, some of the aircraft offered to us were not even at the same level as the Impala, so they did not look  
25                   at them any further and we were also looking for aircraft that's

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still in production, I mean why should we replace an aged aircraft with another aged aircraft, so the aircraft must meet production, so those are the high level things that we used to eliminate some of the contenders. Paragraph 3:

5                   *“The objective of this report is to recommend a shortlist of aircraft types that potentially can satisfy the requirement of South African Air Force for an Advanced Fighter Trainer and to obtain approval to issue requests for proposals. Requests for*  
10                   *Information is testing the environment out there to see what is there that you might need to consider”.*

It's only a testing of environment, it has no contractual obligations, nothing, and we will repeat this a few times, the difference between what we say an RFI and RFO. I would like  
15                   to move to page 40, if there is anything else you would like us to discuss please highlight it but I took the liberty to highlight the things in order for us to move through the document and to understand the document. On page 40 ...

ADV MPHAGA:           Before page 40 you indicate also about  
20                   your visit to the suppliers, what is the significance of that visit on page 39, paragraph 2?

MR FERREIRA:           What paragraph?

ADV MPHAGA:           Paragraph 2 on page 39.

MR FERREIRA:           The visit?

25                   ADV MPHAGA:           The visit to the suppliers.

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MR FERREIRA:        Alright:

5                            *“It was also approved that the Project Team visit all  
the suppliers included in the shortlist to conduct a  
more in-depth investigation of the suitability and  
financial health of a supplier, the quality of the  
long-term support that it can provide and the  
capability of the product that it has on offer to  
satisfy the operational requirements of the South  
African Air Force. The visit took place from  
10                            2 September 1996 to 6 October 1996”.*

We did not visit all 22 contenders, we only visited the nine  
contenders on the shortlist.

ADV MPHAGA:        Okay thank you, you can proceed.

MR FERREIRA:        On page 40 paragraph 5:

15                            *“The evaluation of the nine contenders to determine  
who should receive requests for proposals is based  
on a process of establishing the South African Air  
Force operational and support requirements and  
ARMSCOR contractual requirements.*

20                            We are looking at (indistinct), we concentrate here on  
contractual issues, our financial issues and at some  
performance issues. If I go to (a) there:

25                            *“An initial Request for Information was sent to all  
possible trainer aircraft suppliers to determine  
whether they had a product that could satisfy the*

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5           *South African Air Force requirements and whether  
the supplier wishes to take part in the programme.  
The RFI was sent out on the 22<sup>nd</sup> of May 1995. A  
supplementary RFI dated 18<sup>th</sup> of March 1996 was  
sent out to establish certain performance criteria of  
the proposed aircraft”.*

Now there’s nearly a year that went past between the first and  
the second one.

10           *“A visit questionnaire was submitted on the  
2<sup>nd</sup> of August 1996 to the nine selected contenders  
during September, October to gather the specific  
information as requested in the questionnaire”.*

ADV MPHAGA:           Whilst you are looking for ..., how did you  
come to select the 22 contenders in terms of sending the,  
15           inviting them to ...

MR FERREIRA:           We had a high level Value System where  
we were, where they were measured against, first of all  
whether the aircraft was jet propelled and has a tandem  
cockpit. The second one, the better performance than the  
20           Impala MK2, then whether there should be any advanced  
development, flight demonstrator or in production, it should be  
delivered into service not later than 2003 and the manufacturer  
must have indicated his willingness to participate while  
responding to the request for additional information issued in  
25           1996 March, 27<sup>th</sup>. For those aircraft that’s left over we then

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actually measure their performances and from there we then determine the shortlist of nine. When there was no time we were looking at the jet, at the (indistinct) aircraft or an aircraft of low performance, we were only wasting our time, so the aircraft that met these criteria (indistinct), from there we selected the nine which is reported in the report.

ADV MPHAGA: Now did you proceed to ... Can you just switch off? Did you proceed to evaluate these nine contenders on the shortlist?

10 MR FERREIRA: Yes Chair.

ADV MPHAGA: Now on page 41 there's an evaluation process in a schematic form, are you able to take us through that?

MR FERREIRA: Yes Chair. We start off with a Value System, and remember I'm looking at RFI, we look at the supplier and we look at operations, how the aircraft perform, and we look at logistics, how it will be supported. From there we got a system value, then we did a cost analysis because you must remember when we did this programme it is normal acquisition, there was money put on budget for this, a certain amount of money, we could not go for any aircraft which would have exceed a certain value which we will come back later, so any aircraft that would exceed the amount of money that we (indistinct) on budget were eliminated because it's unaffordable.

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From there we then look at the cost effectiveness index where we divide the system value by the cost, then we look at schedule, any aircraft that could not be delivered within our timescales, because it was very important for us to meet the timescales were eliminated, if they did meet the timescales they went through to the next phase and if I recall correctly all the aircraft met our timescales.

Then we look into the risk, we did a risk analysis and the question was whether the risk is acceptable or not. If there is a risk that we could not abate through management or something we could not go ahead with that product, if I can recall correctly there was no aircraft eliminated on risk, all the risks were manageable. Then we did a trade-off analysis where we looked at the risk, at the Value System and from there we draw up a priority list of aircraft which was our recommendation, who should receive a Request for Offer. The detail of each of these phases are described in the (indistinct) report which is in front of you and I will quickly attach each of them with a bit more detail. On page 42, the Value System:

*"The hierarchical Value System to determine a scientifically based quantitative value for each contender was established before embarking on the actual evaluation".*

We were looking at supplier value, operational value and logistic consideration.

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*“The Value System is fully objective and it was based on written replies by prospective suppliers”.*

We could not use other data than was provided by suppliers because it's not traceable or auditable later on. For that  
5 reason, no matter what was written in Flight or (indistinct) or any of those books, we could not take it into account when we did the evaluation.

*“The operational value was to determine ...”.*

It's indicated below what we looked at, we looked at  
10 performance, we looked at the airframe, we looked at the engine, we looked the weapons, at the cockpit avionics and as you can see there under all of those there are even further written down the things we looked at in order to determine a value for that category. I don't know if you want us to go  
15 deeper into it or whether we can end at that level?

ADV MPHAGA: Yes.

MR FERREIRA: Alright. If you turn over to the next page, page 42 there you can see the results, the results for operational value is said that the AT-2000 exceeded all our  
20 requirements, the Gripen exceeded our requirements, you had the SU54, the MIG80 the AMXT, the Jak130, L159, the Hawk and the 339. The next one we looked at was Logistic Value System.

CHAIRPERSON: Can we just hold on Sir, we are trying to  
25 find out exactly where you are.

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MR FERREIRA: I'm referring to the graph there.

CHAIRPERSON: Okay, thank you.

MR FERREIRA: Then we look at the logistic Value System:

5

*"The objective of Logistics Evaluation was to determine the relative capabilities of the various contractors regarding the provision of logistic services and support over expected life of the AFT and its support system".*

10

We are speaking about 30 years, will the company still be able to support this aircraft 30 years from then.

*"We determine the logistic impact on existing SAAF logistic environment. We determined the reference against which the data was provided and the access of this data".*

15

You must remember these are (indistinct) data, they are not contractual data, they can give us a (indistinct) of any figure and there's no ways for us to verify that, so we try to determine how accurate they gave us data, and we also established the last one the cost of the different aircraft. If I mention here last now the cost I need to put a boundary around it, (indistinct) cost in this case was a cost of operating the aircraft and not a cost of disposal or anything else, and if you add to that the acquisition cost you get total lifecycle cost.

20

25

If you turn over to page 44 you will see the low level breakdown of the logistic value, what we actually were

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looking at, at the bottom level in order to determine value for these aircraft and Figure 3 you will see the results of a logistic evaluation with the L159 being the best. I must mention that the L159, although it was provided by the Czech Republic which was a former Soviet ally they put in a big effort to westernise this aircraft for the Western environment, especially on the logistics side they applied the American standards in the whole logistic approach to the maintenance of this aircraft which we were looking at there.

They were followed by the Gripen, the Hawk, the 339, and AMX, the Yak-130, the AT-2000, the MIG80 and then the SU, logistic proposal came last. The third item we looked at was the supplier Value System, the supply Value System, here we were looking at the company that's providing the aircraft and their suitability and associated risk, we established a long term working relationship.

We are looking at the company profile, the engineering approach and we were looking at the contract, the values are there and at the bottom you can see that the 339 and the AMX, both Italian companies gave us a very good proposal or confidence in long term support of these aircraft, we were feeling that in 30 years they will still be around doing their work. We were very unsure about the issue and because Russia had many big aircraft manufacturers and they all are on a survival course to survive. You will see the MIG80 also were

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down there.

As I said from the system value the operational evaluation count 50% of the value, logistics 30% and the supply of 20%, and if I combine all of those on page 46 that graph indicated that the JAS, Gripen got the highest score followed by the AT and AMXT, and then go down with the MIG80 as the lowest scored aircraft..

ADV MPHAGA: Maybe before we, Mr Ferreira, maybe before you lose us, maybe just if you can take us through this aircraft, the nine aircraft, just to take us through which one is which without you know, you were just looking at the JAS, the AT-2000, the AMXT without knowing where they are from and giving a full description.

MR FERREIRA: Commissioner, I think these graphs give you a good indication, if you go out for a Request for Information everybody answers your request for a possible product. The first aircraft there, the JAS31 is the Gripen. Now considering we are looking for the replacement of an Impala Aircraft we're getting a higher performance aircraft than the Gripen, it's a fighter aircraft. The AT-2000 is a paper aircraft, it was not existing, offered by the Germans to us with, working with Denel, they, at that time there was nothing on it that they could show us, it was all still concept design.

The AMXT is Italian, it's also more an operational aircraft than a training aircraft although it's got dual seats, it's

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got a very good radar in and they call it a "mutt mover", it's optimised for an air-to-ground role. The L159 was a Czechoslovakian aircraft, its predecessor were one of the basis for the Russian Air Force, the L59 was part of their training aircraft, and the L39.

The Yak-130 at this point was a Russian twin-engine aircraft, here it was still offered to us by Bulatov, we will later revisit the Yak-130 (indistinct). The Hawk 100 was offered by Britain, by British Aerospace. The SU54 was a Russian trainer, it was past concept but it wasn't in production yet. The MB339 was an Italian Aermacchi training aircraft, very similar to the Aermacchi that the Impala's (indistinct) flew but more modern. And then the MIG80 was also a Russian trainer developed for the Russian Air Force, at that point in time it was also still in the development phase.

ADV MPHAGA: Okay no, thank you for that. You can proceed and give us the system value, you were trying to explain it before I asked you this question.

MR FERREIRA: ALL I want to indicate in the system value (indistinct), we actually had non-training aircraft form part of the results, like the Gripen and the AT-2000, they were fighting aircraft. Then you had, the rest of the group were more, all in the training, most of them in the development phase or in the concept phase like the Jak, the MIG80 and the SU54. As I say we will, later you will see why some of these aircraft were

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eliminated and which aircraft we end up as an AFT formal proposal.

If I go on the next thing we were looking into, introduction into the operating timescales, there we were  
5 forced or the idea was that we start our first training school in January 2004 with, at that time the Impala Aircraft would have been phased out. In order to achieve that we were looking at the first delivery, a release to service programme, the commissioning and when the 16<sup>th</sup> aircraft would have been  
10 delivered. You can't start flying with one aircraft in a squadron, you need at least 16 aircraft to change your training programme from one aircraft type to another aircraft type.

We came to the conclusion that all the contenders can meet the deadline of training school in operation by  
15 January 2004, the AT-2000 had some risk of being late because it was the only aircraft which is still in the concept, all the other aircraft at least were some development already taking place.

Then we looked at cost analysis, the cost analysis  
20 is conducted by firstly establishing within a margin (indistinct) negotiable where the quantity of 42 aircraft plus the required logistic support can be acquired within the project financial baseline. If you look at Figure 7 there was a draft ... Okay, the top margin of \$828 million represented the acquisition  
25 based on budget in the current financial terms. Contenders

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exceeding this margin is not affordable. The bottom line of  
&644 million represent the current budget allocation as a  
reference only.

At that time on budget we had %644 million and we,  
5 because we were in the acquisition phase we were estimating  
that at least we should go up to \$828 million but we will not get  
more money than that. Immediately the Hawk was on the top  
margin and the Gripen exceeded that amount, so the Gripen  
was unaffordable, it couldn't go ahead, we could not afford that  
10 aircraft. All the other aircraft were within or below that  
margin.

As I said the Hawk was right on the edge, so it was  
still then considered in the next phase. Then we looked at  
risk, up to this point the evaluation has been conducted on an  
15 objective basis using mainly written information as stated by  
the prospective supplier. In the risk analysis which is mainly  
subjective evaluation is done, supported in some cases by  
objective measurements. The risk analysis considered the  
major risk that could have a serious impact on the project and  
20 quantifies the severity of the risk should it occur.

Each contender is then subjectively evaluated on  
the probability that risk occurring and the probability is also  
quantified. A mathematical combination of risk severity and  
risk occurrence probability provides each contender with a  
25 score against the risk stated. What we said here is we look at

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risk and risk is on two elements, there is, or if it happens what will be the impact. If a company, let's take for instance financially, if a company goes into business rescue the programme is dead, so it's got a very high impact if it goes into  
5 this rescue. On the other side you ask what's the probability that that company will go into business rescue, a company with a good financial status have got a very low probability and by multiplying those with each other we can get a risk indication for that specific risk.

10 I will go slightly deeper into risk on page 49 but let's finish here. As you can see from the graph Figure 8 the SU54 had the highest risk for us, followed by the MIG80, the Jak130, the AT-2000. Now the first three aircraft is all Russian aircraft, they were designed and developed to Russian  
15 standards of which we had very little knowledge about and also the Russians at that time they just came out of being the Soviet Union, so they also had financial problems in Russia.

And then we had the AT-2000, the L159, the Gripen, the AMX, and then the Hawk and the MB339 had the lowest risk  
20 because they were already existing aircraft and the companies that we're buying them from, the countries, they were strong countries.

The last thing I would like us to look at is the tradeoff analysis, the tradeoff analysis takes all available  
25 information objective and subjective into account so that

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advantages and disadvantages of each contender may be considered when determining the relative merit of the contenders to receive requests for proposals. And on page 49 I got the nine aircraft, a tradeoff analysis, we start with the AMXT, you can see there the advantage was the multi-role capability, it's got handling characteristics observed, it's got a growth potential to a more capable multi-role aircraft. Then the disadvantages, the avionics system needs to be modernised, it's got an old technology engine and redundant systems. It was an aircraft that was designed, developed between Italians and Brazilian and at that time it was already in operation and mature and at that time it was already in operation and mature, that's why we say old technology engine, we had to relook at that engine for it to fly up to 2014.

The AT-2000 was a paper aeroplane, it was a concept design, it provided us with a wide range of capability from training through to multi-role combat, there will be very high industry involvement, it would have provided the growth path from the trainer to the (indistinct) because it's still a concept design, they were looking at a mode where they (indistinct) the engine so it doesn't, it performs as a training aircraft. The disadvantage was at that time that they were depending on South Korean funding and they were not finding other customers, we would have been the only customer. There's a risk of acquisition and support cost increase, we are

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the only customers flying aeroplanes, we will have to maintain the whole infrastructure to support this aircraft once it's in operation, unless they get other suppliers. There was a risk of timescale, slipping beyond the required operational date, if anything went wrong during the development or the certification the aircraft would have been delivered late and there was nothing that they could deliver us in the meantime. So, and as I said it was a development risk.

The Hawk 100 as proposed as at that time by the British Aerospace, it was in service, it was in service at various countries, it was a good jet trainer and it was modernised for later clients, when we speak about LIFT we will show you the development history of the Hawk. The Hawk (indistinct) 1960 design as some people claim, it was the latest they designed, it was a basis that was used for the Australian Lead-In Fighter and it had a very good fatigue life already. The disadvantages, it had a high entry price taking into account acquisition and support BAe has undertaken to negotiate the price down but it was still, when we considered it, it was a very expensive aeroplane, it had limited operational performance, low turn rates for (indistinct) and it does not comply to a multi-role requirement. Then the Hawk, if you want an operational aircraft you had to look at the Hawk 200 which was a single seater.

Then JAS Gripen was a modern high performance

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Light Fighter, we speak more about the JAS in the ALFA Programme, the disadvantage was it was customised for the Swedish operational conditions which is cold and it was unaffordable.

5                   The L159 from Czechoslovakia, it was based on a  
59, the 159 flew its first flight in 1997, so it's actually a new  
aeroplane. Advantages, it was a reliable airframe fitted with  
modern avionics, they offered to us Boeing avionics in that  
aircraft, it had good jet training performance, it a  
10                   comprehensive system fit at a reasonable cost, the (indistinct)  
system, it had a well-established support system based on  
Western principles and also it had an American engine in, the  
F124 which will also come up later in our presentation again.  
The disadvantages, we could be the only user outside the  
15                   Czech Republic because they were buying, they were building it  
for themselves. The airframe at the end of design performance  
cycle, there's nothing more you can do to this airframe to  
increase its life even further, they had done everything  
possible at that time to extend the life to what was offered to  
20                   us and it just complies to the multi-role requirement.

                  The 339 from Aermacchi was in production and in  
service, it had a low acquisition cost and operating cost and  
there were some commonality with the MB326 which would have  
assist in supportability. Disadvantage, it had very limited  
25                   combat capability (indistinct) performance, no multi-role

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capability and then also approached the end of its (indistinct) design life, as with the Hawk, they were all old airframes that had been modernised up to that point and there is nothing more you can do to increase it even further unless you start  
5 redesigning the whole aircraft.

The MIG80 from Russia, at that point it had a flight demonstrator out there, it had good predicted performance. Disadvantages, high risk associated with the production launch without going through a proper development cycle, there were  
10 differences in logistics, philosophy and practices, differences in development and production standards between the Russian standards and Western standards, it can be considered only if first acquired by the Russian Air Force, at that point they were still (indistinct) SU and they haven't made their decision yet.  
15 It just complies to the multi-role requirement.

The SU54 was also from Russia Sukhoi, it was then in a concept design, it provides a wide range of capability from training throughout multi-role (indistinct), high performance with carefree handling. Carefree handling I don't want to  
20 elaborate. If you have a (indistinct) system on the aircraft or a fly-by-wire system on the aircraft the system will protect the aircraft against the pilot operating it, so the pilot can open his throttle from idle to full but the system will manage the engine with inside the parameters to accelerate at the right speed,  
25 otherwise you cause damage to the engine and you take away

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life, that's what I mean by carefree handling, you don't need to think how you operate the aircraft, you fly the aircraft and the system will do all the protection on the aircraft. A growth path from training to a combat version, it did provide that.

5 Disadvantage, insufficient information provided to properly evaluate the contender who had no cost and timescales, high risk identified (indistinct) provided opportunity to clarify issues denied, when we asked them please clarify this they didn't come back to us. There was a development risk and a risk in

10 differences in logistic philosophy and practice.

The Yak-130 provided also by ..., this was provided by Russia and they worked with Aermacchi, at this time they were still offered to us by Jakolov, there was also a flight demonstrator, it had good performance, the Aermacchi

15 involvement to manage conversion from eastern to western standards, a low acquisition and operating cost targets, performance and reliability enhancements if possible by relative simple engine replacement.

There was a disadvantage of an engine upgrade

20 development risk, it can be considered only if (indistinct) applied by the Russian Air Force. Risks associated with the airframe built in Russia and system integration in Italy, it just complies to the multi-role requirement. Now the funny thing here is the engine they proposed to us in the Yak-130, the DV2

25 was the engine originally that flew in the L59. The L59 or the

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L159 got the American F124 engine in, that is the engine we would have liked to see in the Yak-130, they offered to us the old L59 engine as part of the Yak-130. This aircraft today is now I think an Aermacchi 348 built in Italy, it's flying already and I think (indistinct) people that bought it now. Our recommendation:

*"Based on the tradeoff analysis the summary is recommended that suppliers ...".*

All these aircraft I mentioned now were eliminated, we did not look at them further. The aircraft we did look at and which is on page 52 were the AMXT, it was in production, it was a multi-role, it had a growth path. We looked at the AT-2000 although it was a paper aeroplane we still need to consider that, mainly because of the big Denel role played into that. The L159, it had a balanced performance, assistance and reasonable cost, good logistic support, and the Yak-130 because we also had this Italian connection to it. Notice when we did the AFT now that the Hawk 339 was one of our final people that we recommended should receive a request for proposals. That was our Evaluation Report. If I go back to my statement, and we are nearly finished with the AFT, we can go to page 6 paragraph 3.5, can we go ahead Commissioner? Right:

*: "ARMSCOR continued with the project study and submitted the shortlist to the Ukhozi Control Board, which shortlist was subsequently submitted by the*

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*Ukhozi Control Board to the AASB during July 1996 for approval to be granted by the AASB to enable ARMSCOR to issue an RFP”.*

5 So we were now at a point where want to issue a Request for Offer. On 20 March 1997 the ...

ADV MPHAGA: Just before you proceed, maybe to explain the RFP, RFO concept, is it the same or are they different?

10 MR FERREIRA: When we discuss the ALFA or the LIFT I will give more detail on what the RFO actually was, all we say is we were ready, we had a shortlist of aircraft, wanted to go to the next phase where we wanted to buy this aircraft in order to determine which is the, which aircraft will best meet our requirement, we need to issue a Request for Offer. As I said here we were ready in July 1996 to continue with this acquisition.

15 Then in March 1997 the AASB approved a recommendation from Ukhozi Control Council to delay the project by 12 months, this decision of the delay was revised at the AASB on 7 April 1997, they postponed until the completion of the Defence Review and available funding established. So, what we were waiting there, why we delayed the programme is they were busy with the Defence Review. Now once this Defence Review has confirmed that we need the AFT we were ready to continue with acquisition of the AFT.

25 Now we thought that it will take us 12 months,

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that's why we proposed 12 months, then they came back and said no, not 12 months, let's let the Defence Review finish and receive that funding as it will be available because if there's no funding you cannot continue, if the funding was put on yes, we can continue, this is the long term planning of the Defence Force.

*"The Project Study Report described the process followed to determine the shortlist'.*

We've been through that. Then:

10 *"Due to the change in circumstances the project study was no longer applicable to the new SAAF requirement".*

Remember, then the SAAF came in with their two-tier system and suddenly what we did (indistinct) was invalid and at that point in time the RFI for all intents and purposes fell away, so the project was stopped there. I must also mention that in February 1997 if I'm correct the Britain's also then interfered in our decision process with their so-called package deal which was then also taken into consideration.

20 *"As a result of the Ukhozi Control Board Council (indistinct) delay and the reasons therefore the SAAF looked at a new strategy to satisfy the requirements of the fighter".*

At that time they were still then looking at a possible cost saving by going to a two-tier, and the AFT Programme at that

25

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point of time were stopped and I think that is where we can end the AFT.

ADV MPHAGA: So if I understand you well that the shortlisted suppliers in terms of that interim study report then  
5 that did not proceed anymore?

MR FERREIRA: That's correct Sir, we did not proceed, we did not issue the RFO's, the whole process was stopped because the requirement for the aircraft has now changed, the work we have done there was invalid (indistinct). When we  
10 speak about the offer we would then look at the (indistinct) requirements again and the impact of that on acquisition.

ADV MPHAGA: I see in this respect there was a meeting of Ukhozi Control Council meeting on 7 October 1997 on page 53 of the bundle.

15 MR FERREIRA: That's correct.

ADV MPHAGA: What was the significance of that meeting?

MR FERREIRA: Basically that's (indistinct) because of paragraph 55, 7.1:

20 *"The Interim Project Ukhozi Study Report is completed, however, in light of changes in the circumstances the project study is no longer applicable to the new SAAF requirement. A submission has to be done to the Armaments Acquisition Control Board ...".*

25 CHAIRPERSON: I'm sorry, I'm sorry. Can I ask the witness

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to look at us and see whether we are on the same page with him, (indistinct) probably get to the page you have finished reading, just make sure that we are on the same page with you.

MR FERREIRA: I'm sorry Chair.

5 CHAIRPERSON: Which paragraph are you reading now?

MR FERREIRA: On page 55.

ADV MPHAGA: Is it 7.1 page 55, 7.1, is it correct?

CHAIRPERSON: Thank you.

10 MR FERREIRA: Chair, all we want to just prove there, show there is that a submission has to be done through Armaments Acquisition Control Board to request the Project Ukhozi for the AFT Interim Study Report to be put on ice. So, it ended the AFT acquisition process.

15 ADV MPHAGA: So in 7.1.1 it says that a submission has to be done to Armaments Acquisition Control Board to request the Project Ukhozi Interim Study Report to be put on ice, is that what you are mentioning?

MR FERREIRA: That's correct.

20 ADV MPHAGA: So that was the end of the AFT, is it a project?

25 MR FERREIRA: This, Commissioner this was the end of AFT as we initially started in 1994. We are now going to move with Project Ukhozi in the next phase to the ALFA, but this in effect ended AFT and that's why I need to give background on AFT so the people understand that we did not start with the

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SDP's the first time, we were already down a process, we were far down this process in placing and go to a Request for Proposal when this process was stopped.

ADV MPHAGA: Chair, maybe it might be the right time to  
5 take an adjournment before we proceed to the next system.

CHAIRPERSON: We'll adjourn for 20 minutes or so. Thank you.

**(Commission adjourns)**

**(Commission resumes)**

10 CHAIRPERSON: Thank you. Can the witness confirm that he is still under oath?

MR FERREIRA: I do.

CHAIRPERSON: Thank you.

ADV MPHAGA: Thank you Mr Ferreira. We are now going  
15 to proceed to discuss the paragraph 4 of your statement on page 7 in respect to the ALFA, am I correct?

MR FERREIRA: That's correct.

ADV MPHAGA: Now in paragraph 4.1 you make reference  
20 to the minutes of 5 August 1997 of Project Ukhozi where they discussed the issue of the budgetary constraints and the proposal by the South African Air Force for a new strategy to satisfy the requirements in terms of the fighter aircraft. Maybe  
let's just go to page 59 and look at the minutes of 5 August 1997, page 59 of the bundle Chair, in particular  
25 maybe page 60 paragraph 7.1.1 on page 60. Can you see that

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Mr Ferreira?

CHAIRPERSON: 7.1?

ADV MPHAGA: 7.1.1 no page 60. It says there:

5

*“The Military Command Council and the Defence Staff Council are to be briefed that the SAAF is as a result of budget constraints busy looking at a new strategy for satisfying its requirements in terms of fighter aircraft”.*

What were the implications of this Mr Ferreira?

10

MR FERREIRA: Chair, this was when the Air Force was looking at going to a two-tier system having two aircraft in the (indistinct) because of the financial constraints they had at that point of time. As I said before this was addressed in detail by General Hechter and General Bayne, so I cannot speak on their behalf but what I can say is this did impact the information we had out there on the AFT because this made the information we received on the AFT invalid as it did not meet the new requirement.

15

20

ADV MPHAGA: And I also see that in the same page, on page 60 8.1, page 60, 8.1 of the minutes of 5 August 1997. 8.1, it speaks about “The current situation with respect to the RSA Government to UK Government negotiations”. What was it all about?

25

25

MR FERREIRA: Chair, as I mentioned before that in February 1997 the Britain made a package proposal to the

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South African Government, this was followed up with proposals from France as well as some other countries and at this meeting Mr Eric Esterhuysen informed the meeting of the current situation with respect to the UK Government proposal to offer a package deal to the SANDF, it also gave the background and motivation of UK Government to do so and warned that there are several pitfalls and dangers for the SANDF to consider before accepting one of these package deals.

As I mentioned before we were busy with the normal acquisition and then suddenly we were stopped because of interference of the Brits into our acquisition process.

ADV MPHAGA: Thank you. Now on paragraph 4.2 you mentioned that:

*“On 19 September 1997 the Council of Defence approved the continuation of the SDPP and resolved to include the ALFA in the SDPP”.*

Can you just elaborate on that?

MR FERREIRA: The participation in the SDPP programme was the instruction that was received from the top, and as I said there:

*“On the 19 September 1997 the Council of Defence also approved that the ALFA aircraft should be one of these items included in the package deal”.*

That was on 19 September.

ADV MPHAGA: Now on paragraph 4.3 you mentioned that:

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*“On 29 September 1997 ARMSCOR issued an RFI to the countries selected by the AAC to participate in the SDP”.*

Can you just give details to that?

5 MR FERREIRA: As was mentioned on the other programmes there was an instruction to issue RFI's to countries who applied to offer us package deals, these included Britain, France, Germany, Canada and Italy, then Sweden, Belgium and I think they were more or less everybody that at  
10 that time were offering package deals to us.

ADV MPHAGA: Now we'll come back to the RFI and discuss it in detail, but I think you mentioned on the very same paragraph that the Staff Target and Staff Requirement served as a technical basis for the drafting of the RFI. Can you just  
15 explain to the Commission what does it mean?

MR FERREIRA: What happened before that time when they started to ...

JUDGE MUSI: Can I interrupt the witness, I'm sorry for doing so, before you go any further I just want some quick  
20 clarification about what appears on 4.2, page 7 stated:

*“On the 19<sup>th</sup> of September the Council of Defence approved the continuation of the SDPP and resolved to include the ALFA”.*

We're talking of the continuation of the SDPP but I haven't  
25 seen anything about its inception, how was it conceived and

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which equipment was supposed to be initially included in this package before we even talk about its continuation and the inclusion of the RFI.

5 ADV MPHAGA: Thanks Commissioner Musi, can you just explain it Mr Ferreira.

MR FERREIRA: Commissioner, the Brits came in February 1997 with their package deal and there was a group of people that was busy looking at this package deal, then the French came and they also wanted to make a deal, we had a visit from  
10 the Germans. Now all these package deal negotiations took place outside the project environment and it was a government decision at that point of time to continue with the package deal, so if I say there the Council did approve the continuation of the SDP's it means at that point they then decided that we  
15 are going to acquire these weapons, we were looking at the Corvette's, the submarines, the ALFA Aircraft and the Light Utility Helicopter as part of package deal.

And when I say there continuation of the SDP's was that the AA, the Council of Defence confirmed that this is how  
20 we are going to procure these items and that we should issue a Request for Information to those countries that approach us to provide package deals, that's what I meant by continuation. Up to that point we were busy with the normal acquisition process outside the package deals.

25 JUDGE MUSI: What it means then is that these proposals

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by these countries you have just mentioned, they were accepted in terms of which you are going to embark on a project to acquire all the equipment just mentioned, the Corvette's, the aircraft and *et cetera, et cetera*?

5 MR FERREIRA: Commissioner, if you recall what was said on the submarine programme is that the British came to us and said we'll offer you Upholder Class submarines, we will offer you the following Corvette's, they will offer you aircraft but they didn't offer us Light Utility Helicopters. Then the French  
10 also said but we also want to offer some items to you because it's not only the Brits, so really there were two countries that said but we can also offer you a package deal and then the other countries also joined into offering our package deals, so when we went out on the Request for Information by the, when  
15 it was initiated they were looking at, the package then was the Corvette's, the submarines, the ALFA Fighter Aircraft, the Light Utility Helicopter, they were looking at a Maritime Helicopter and they were looking at the main battle tanks, that was at the RFI stage and as I said there it was, they say that the SDP  
20 Package should include the ALFA and then we went out on the ALFA as part of the package deals to get information on the Request for Information.

JUDGE MUSI: What I'm trying to verify is when was this decision taken to go for the package deal?

25 CHAIRPERSON: Just hold on, maybe let me just try and

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help. We have evidence already on record that it is Government which took that decision, then the Minister of Defence then wrote a letter which they distributed to various embassies asking those embassies for information relating to the various equipment that were stated in that letter from the Ministry. My understanding seems to be that's how these (indistinct) and you and your team were busy with your project, now after the Government has taken a decision that they must approach those various countries, ask them for information you were then told that this project must also fall under the new initiative, is that not what happened?

MR FERREIRA: Mr Chair, you are correct.

JUDGE MUSI: Thank you, you may proceed.

ADV MPHAGA: I was asking you the ..., I was just mentioning that the Staff Target and staff requirement served as a technical basis for the drafting of the RFI, so I just wanted you to elaborate on that Mr Ferreira.

MR FERREIRA: Chair, if you recall up to that point our Staff Target and Staff Requirement was based for the AFT aircraft. In April 1997 we updated that Staff Requirement to start looking at the high level aircraft, we would come back later to a revised Staff Target or Staff Requirement but the RFI that went out at this point of time would have been the replacement of the Impala MK1, Impala MK2 and the Mirage F1 Aircraft, so it was a higher capability than only the Impala

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Aircraft. This revised Staff Target, Staff Requirement was only approved in February 1997. No sorry, February 1998 as a revised Staff Target, Staff Requirement.

5 ADV MPHAGA: Can you just switch off? And you mentioned further that the RFI contained both the Defence Industrial Participation, the National Industrial Participation requirements and the technical requirements, but you are restricted only to technical requirements and not necessarily the DIP and the NIP, am I correct?

10 MR FERREIRA: You are correct. I would like to take the opportunity for us to walk through the RFI on page 70 so we can get a better understanding what the RFI actually was about.

ADV MPHAGA: Is it page 70?

15 MR FERREIRA: 70, the actual RFI starts on page 71.

ADV MPHAGA: Thank you. If you can just take us through the important aspect of the RFI. Maybe before you continue, were you involved in the preparation of the RFI itself?

MR FERREIRA: Yes, I was.

20 ADV MPHAGA: You can proceed to take us through the analytical aspects of it.

MR FERREIRA: Commissioner if you are ready? On page 71 paragraph 1:

25 *"This RFI is to replace the Aermacchi MB326 and 32K".*

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That is Impala MK 1 and MK2 Chair:

5                   *“... trainer, light combat aircraft and the Mirage F1  
Ground Attack Aircraft and eventually the Cheetah  
C Multi-Role Conduct Aircraft with an advanced  
multi-missioned light fighter aircraft”.*

Where the AFT was only looking at replacing the Impala MK1  
and MK2 we are now looking at replacing all the aircraft with a  
single aircraft.

10                   CHAIRPERSON:       I’m sorry, can you tell us which paragraph  
were you reading, both of us seem to be lost here, we are  
trying to see which paragraph maybe you were reading.

ADV MPHAGA:       Apologies, page 71 paragraph 1 under  
“Introduction” Chair. Can you repeat it Mr Ferreira so that the  
commissioners are with us?

15                   CHAIRPERSON:       Okay.

MR FERREIRA:       So Chair, what we’re asking here was with  
inside the two-tier system and aircraft to fulfill both roles of  
the second and the third tier, the next paragraph, very  
important:

20                   *“The objective of this RFI is to obtain information  
from your company in respect of an aircraft product  
system that can satisfy the above requirement and  
is further described in paragraph 2 ‘General  
Description’ and paragraph 3 ‘Minimum  
25                   Requirements’”.*

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Again we are looking for information.

*“Included in the system we except main equipment ...”.*

Which is the aircraft:

5 *“... mission support equipment ...”.*

Like simulators and other items you need or components you need in order to plan and debrief missions:

10 *“... the clearance of South Africa supplied weaponry, an integrated logistic support system, ...”.*

Which is the spares, the technical publications, the training, the ground support equipment:

*“... the programme management”.*

15 What their involvement is going to be to manage the programme, and then:

*“... industrial participation”.*

Which was a separate reference. If you look at the paragraph above that:

20 *“The reply must be prepared within the scope of the Government-to-government Strategic Defence Equipment Alliance as invited by the Minister of Defence”.*

Go to paragraph 2 looking at the “Product System”, again we say:

25 *“The South African Air Force (SAAF) requires a*

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*replacement for its Impala, Mirage F1-AZ and the Cheetah 3 to carry out a wide spectrum of combat and training missions successfully under ISA conditions ...”.*

5 Now ISA is the International Temperature and Altitude”:

*“... within the (indistinct) temperature range of minus (indistinct) minus 20C”.*

That’s (indistinct) spec for operating of aircraft.

10 *“The aircraft shall be a multi-role aircraft that is robust and a reliable system capable of surviving and being effective in a high threat environments”.*

A high threat environment is an area where there might be ground-to-air missiles or attacks possible and also air-to-air where fighter aircraft can be in an environment with radars and other sensors. Again:

*“Suitable technology shall be applied to meet the operational training and support requirements for the years 2004 to 2040”.*

We don’t even keep (indistinct) on this, we keep aircraft. Then we go to page 72, we explain to the potential offerers how we intend utilising these aircraft in terms of deployment, aircraft are mainly deployed form their bases but sometimes we deploy them to other places and as we say there 80% of the time they will fly from their own base, 20% of their cycle they will fly from other bases, at that time we were looking at 48 aircraft,

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the deployment date was then, (indistinct) operational by 2006, at least 16 aircraft. We would allocate the aircraft to two fighter squadrons and then we give them an explanation of the missions we intend flying. Go to page 73, we give them  
5 indication of how we are going to fly the aircraft, how many hours per year and what are expected over the 30 years, we give them an indication of what our mission rates is going to be and how we are going to utilise these missions and what fly potential we expect. We also in paragraph 3 attach as  
10 Appendix "A" to the submission which is page 77, we list a number of parameters considered to be critical.

ADV MPHAGA: Can you just wait maybe for the commissioners to get the page.

MR FERREIRA: Okay, we'll read this paragraph and then  
15 we'll go to 77 so we can look at it. This tables a number of parameters considered critical in the first order evaluation of contending Light Fighters. The contractors are requested to state in its reply the conformance to the exact achievement against each of these parameters in the same order that they  
20 appear in Appendix "A", and provide us also with the technical description and a performance manual. Now if you go to page 77 you would notice that our parameters there is very much like a questionnaire which they had to respond to with support information, we were looking ... It says here on page 78, we  
25 were looking at some strategic parameters. Are you on page

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78? Ready? The type of parameters we asked them to reply to were, and I'll only take the headings, Strategic, looking at local industry for instance and when it will be able to operate, we looked at some risk parameters, then we looked at some aircraft performance parameters. Page 79 we look at aircraft handling, on page 80 we looked at weapons, the cockpit, specific there the field of view out of the cockpit, where you are able to look not obstructed. We looked at survivability, you can see there we are speaking about the ejection seats, (indistinct) seats, and also battle damage.

On page 81 we're looking at safety, the design of the aircraft should not be less than one aircraft lost per 100 000 hours of flying due to an aircraft failure, that's typically the safety (indistinct) that we are looking at. We were looking at fuel, specifically whether we were able to do inflight refueling, some airframe parameters, the system performance. What's meant by there that 95% of all missions should be completed successfully, so 95 out of every 100 missions they should be able to finish the mission.

Then we start looking in communications, page 82 electronic warfare, flight control. Page 83 we were looking at navigation, the displays in the cockpit, page 84 we were looking at target acquisition, that's your radars you have on the aircraft and helmet mounted displays, we were looking at weapons delivery, the different modes that we deliver weapons

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and accuracy we expected. On page 85 we were looking at the record and monitoring, that is onboard video recording, we were looking at audi recording and programming of onboard systems. Page 86 we were looking at maintenance, replenishment.

On page 87 we had a look at logistic requirements, we were looking at the meantime between failures of 4.5 hours, so we at least want to have 4.5 hours or four missions without a failure, we were looking at the engine, very high level parameters, we were looking at the peripheral systems like the simulator, ground-based training, page 88 mission planning, mission debriefing and then we also looked on page 88 the training gap.

Now these were all the parameters that were set out on the RFI stage to see what they can offer us meeting our requirements, we told them what missiles we intend to carry on this aircraft, we indicate to them what's our fatigue spectrum, we (indistinct) and then we asked them for a detailed cost breakdown. So this is very much a questionnaire to be completed with supporting data.

ADV MPHAGA: If we look at page 88 I think it's 8.1, the "Training Gap", it says that:

*"It shall be possible for an average qualified pilot to convert directly from the ASTRA to the Light Fighter".*

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That was important for, was it in the two-tier system?

MR FERREIRA: Yes Chair.

ADV MPHAGA: Okay you may proceed then.

MR FERREIRA: Alright Chair, I've been now through the  
5 RFI that we set out, the appendix, I would like to come back to  
page 74:

*"Where the equipment on offer does not satisfy the  
stated minimum requirements that can be upgraded  
to the minimum requirements the implications in  
10 terms of scope of work, timescale and cost to  
achieve full compliance must be stated".*

In terms of timescales, important there is that we want initial  
operating capability not later than January 2006 and that all  
deliveries including logistic support should be completed not  
15 later than 2012. If I move to page 5 "Certification":

*"Before delivery to the South African Air Force the  
Light Fighter in its final configuration shall be fully  
certified for its full operational role to international  
defined and acceptable certification standards, the  
20 contractor shall take full responsibility for the  
certification. The airworthiness certification shall  
be set to a set of minimum airworthy requirements  
as determined by a Joint Airworthiness Board and  
under the chairmanship of the director of  
25 Engineering of the SAAF".*

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We then prescribe to the potential contractors how they should complete their response to the RFI with a general description, a compliance to the minimum requirement, a technical, page 75, a technical description, they should provide us the performance manuals of the aircraft available and a cost breakdown with a cash flow profile. We also asked the contractor on page 76 to provide us his programme management plan indicating the master schedule, the work background structure, the management structure, the (indistinct) interfaces, major programme milestones, technical performance measurement, system engineering, configuration management, quality assurance, (indistinct) certification.

Also we asked the contractor that he must provide with his response his own assessment of the major risks associated with the proposed Light Fighter Programme and his proposed strategies of managing these risks. In paragraph 7:

*“While the replies to this RFI must be sufficiently comprehensive to select a suitable contractor or contractors for supply of the Light Fighter System detailed negotiations with the Programme Team to address and agree the full requirement of the SAAF and each aspect of the programme will be a prerequisite before entering into contract”.*

My understanding of this was that with sufficient information we could have contracted with the information provided on the RFI,

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this is what my understanding is of this paragraph. I also need to inform the Commission if you look at this RFI it's basically around 20 pages and the responses you received from the different contractors were not as detailed as you expect from a Request for Offer, so the level of effort, so you could not use this documentation for actual contracting. When we discussed the RFO later we will see how many more pages suddenly we add to our requirement and detail he must respond to.

If I go back to my statement page 7 paragraph 4.4 right, at that time there was a group of people that call themselves the International Government Office Management Committee that were overseeing the process, it's not yet the SOFCOM, and on 13 October 1997 they issued a memorandum for the International Government Office the second order Value System. The copy of that is attached on page 95 and 96. What I would like to point out on page 96 if you are there Sir, there they defined the Military Value as:

*"The summation of military operational functionality, sustainable strategic and industrial and total life cycle passed".*

If you turn around to page 98, 99 you will see the Light Fighter Aircraft Value System that we used for the RFI phase and I would like you to take through the Value System [sic]. On page 99 paragraph 2:

*"The objective of the Value System are twofold; to*

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5           *determine which proposed aircraft system satisfies the minimum requirements for an Advanced Light Fighter Aircraft as specified by the SAAF, to rank the qualifying aircraft systems accordingly to the extent that they satisfy the SAAF specific requirements”.*

If I can go on-on paragraph 3:

10           *“The ALFA Value System was derived from a SAAF User Requirement Statement for the Advanced Light Fighter Aircraft”.*

We are not speaking about the AFT anymore, we are speaking about an ALFA.

15           *“As the proposals requested will only be at an information level and not a comprehensive proposal level only the most critical parameters from a URS were selected for the Value System. The emphasis on the Value System is to identify the most suitable airframe and engine combination and logistic support as these will remain fixed for the system*  
20           *service life of plus minus 35 years. Some leeway is allowed on avionics and onboard mission systems as these are determined by way of a budget and detailed negotiations and could be subject to a midlife upgrade”.*

25           To explain what we say here is once you choose an airframe

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engine combination you have to live with that over the full period, unless you decide to do an engine replacement sometime later which is a very expensive exercise to do, so usually what you do is you select your airframe, you engine and you keep them as a pair over the whole life cycle. The avionics, due to the development in the electronic environment and computers your avionic system might not be available over the full time and become obsolescent as new components are developed or they stop manufacturing some integrated services and things like that, so usually on an aircraft halfway through its intended life you replace the avionic system in the aircraft as was done on some of the other programmes in the past, so that is what we are saying there. If I go to page 100:

*“A subset of these qualifying parameters was selected and further expanded to include discriminatory criteria so that the qualifying aircraft systems could be ranked according to the extent that they satisfy the specified requirement when measured against a scientific determined value system”.*

What we are saying here is we've got a ruler to measure the parameter and very important I might measure the same parameter but my ruler for an AFT might be different than my ruler for an ALFA, might be different than my ruler for a LIFT, so we had a set of rulers, measurement tapes for the

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parameters of the ALFA against which we measured the ALFA. If we used the (indistinct) to go and measure for a LIFT we will have another set of rulers with different values against which we measured. So that is all that this Value System, what I'm  
5 trying to explain, the (indistinct) and we allocated points as the aircraft exceeded the minimum requirement and we'll come to that later in the structure.

Our Value System, if you go to page 104 there's attached there, you will notice it's very similar to the Request  
10 for Information that we've sent out, except in this case we've added a column to say what is our mandatory requirement and what's our discriminatory requirement. I will not be going through the whole thing as we did with the RFI but there you can see that that was our Value System.

15 The second thing that we were looking at is we had a hierarchy according to the Value System inputs and only discriminatory parameters were included in the value tree. If I refer you to page 122 you will notice there is a hierarchy of values on page 122. If I look at level 1, go down there you will  
20 notice our second level Value System of cost at the top, sustainability strategic, industrial and military operational functionality. If you look at the next level you will see how we measured cost and total acquisition cost and direct operating cost. At sustainability we were looking at strategic and risk  
25 and in military we were looking at performance, the systems,

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the avionics, the logistics.

I would not like to go further down but it gives you an idea what we were looking at and we measured them at the lowest level and the values was then rolled up to the top level.

5 You can also see there what each parameter contributed to the final decision and the mathematical formulas. The third item back on page 100.

The third item I needed to do my evaluation was sensitivity curves, the purpose of this was to determine the rating or score of each contender, a score must be allocated for each discriminatory parameter according to the extent that the contender satisfies the stated criteria, to ensure consistency, this is done based on the predetermined sensitivity curves or sensitivity tables that is assigned between 10 1 and 0 for a range of most likely values for the parameter.

Now I want to refer to General Bayne's statement where he indicated the revised Staff Target, Staff Requirement for ALFA and these curves were attached to his statement.

20 *"As a general rule an index of 0.8 will be the required value as specified in the URS".*

That's not our mandatory, that's not our (indistinct) but that's what we would have liked to have.

25 *"(Indistinct) to the minimum mandatory requirements the cutoff value. A score higher than 8 therefore signify that the contender exceeds the requirement*

*of the parameter”.*

Now on page 101, the “Evaluation Process”:

5                   *“The Request for Information has been structured so  
that the reply must be provided to each of the  
parameters included in the Value System and in the  
same order as they appear in the Value System.  
Once the replies are received the Project Team will  
firstly evaluate if the contender satisfy all the  
mandatory requirements. Where they do not comply  
10 the team will confirm non-compliance with the  
contractor. The qualifying contenders will then be  
subjected to the hierarchical Value System and  
rated according to the top level score by using a  
computerised multi-criteria decision analyst tool.  
15 The recommendation will be made based on the  
relative ratings but supported by a qualitative  
evaluation of the risk identified as well as any  
peculiar information that warrants raising to a  
higher level”.*

20       Then:

*“Include the name list of evaluators’.*

You would see we were an Integrated Project Team, five  
members of the SAAF, five members of ARMSCOR and I was  
one of the ARMSCOR members specifically looking after the  
25       logistics.

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*“Also special assistance maybe called to help evaluation in specific areas”.*

Chair, I've taken you now through our Request for Information , I have taken you through the way we did the evaluation, the  
5 measuring tool, the next I'm going to take you is going to be the results of the evaluation. We must go back to page 7 and finish it up to that point. Paragraph 4.6 on page 7, that's my next stop. Are you ready?

*“In February 1998 the SAAF Revised Staff Target  
10 and Staff Requirement for ALFA was approved”.*

This included the reintroduction of the LIFT, so we're now back to three-tier system. On 6 March 1998 the ACC approved the updated Staff Target and updated the Staff Requirement for Project Ukhozi which now included the LIFT. I don't know when  
15 we are breaking for tea but I would, the next one I want to address is our evaluation results for the RFI.

ADV MPHAGA: Maybe before you do that, in paragraph 4.5 you mentioned that there were 10 potential contenders or responses which were received and evaluated against the Value  
20 System and then three responses were shortlisted as potential contenders for supply of the aircraft, do you want to deal with that after the evaluation process?

MR FERREIRA: Commissioner, that is the evaluation process, we need to describe and take you through to see how  
25 we got from 10 contenders to the three contenders that was

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identified to receive a request for offer or Request for Proposal but it's a thick document and I would prefer us perhaps to start as a single document otherwise we are going to stop halfway through the document.

5 ADV MPHAGA: Chair, maybe ... I see it's about 12h50, maybe we can adjourn for lunch and then maybe we can proceed after that so that he does not have to interrupt himself.

CHAIRPERSON: Okay, thank you. We'll adjourn for lunch.

10 **(Commission adjourns)**

**(Commission resumes)**

CHAIRPERSON: Advocate Mphaga.

MR FERREIRA: I do.

CHAIRPERSON: Thank you.

15 ADV MPHAGA: Thank YOU Mr Ferreira, when we adjourned you were about to take us through the evaluation of the ALFA RFI on page 123 of the bundle, I see that it is quite a bulky Evaluation Report but can you just restrict yourself to the (indistinct) aspects of it.

20 MR FERREIRA: Chair, this is the one document which we could not find or we didn't (indistinct) a single document cluttering the whole evaluation process. What I'm presenting here in "JVF9" is a combination of two documents, the one is the written one about the ALFA Light Fighter Aircraft  
25 Evaluation Report which is on page 124, the attachments to

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that is the same attachments that was presented to the International Government Office Steering Committee on the 19<sup>th</sup> of November 1997 and I have attached them as part of this bundle. Of course as I said this is the only one where we did not have a single document that captured the whole process as a single document. Let's go to page 124 and unfortunately to go through this document we are going to move forward and backwards because you need to read what was said. As I said before paragraph ... 124, are you there? Right.

10                   *"The requirement was for an aircraft that would replace the Impala, the Mirage F1, the Cheetah-D and the Cheetah-C with an ALFA".*

I would like us to go to page 130, 130 gives us the operational requirement of the aircraft, as it says:

15                   *"It takes over the roles of the Impala, the Mirage, the F1, the Cheetah-D, C and therefore becomes the only frontline fighter, the precision air defence and ground attack capabilities" .*

Now you must remember we are evaluating this aircraft as part of two-tier system then still, or still what we were looking at that point in time, it had a training requirement capable of training pilots for type and operation perversion purposes. The fighter pilot training process from wings to frontline fighter to be followed, the whole process, and then all the suppliers except for the Mirage 2000 confirmed that pilots can convert

20

25

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onto the proposed aircraft directly from the ASTRA. Now this was the statement made in 1997, I can't recall that this principle has ever been applied anywhere by the people who bought Gripen's after that date. I'm angry at those people,  
5 they still use the three-tier system.

The prime parameters, the force parameters as they say there, we compare it against the F16, a Mach of 1.4, a (indistinct) turn rate of 18 degrees per second and sustained turned rate of 9. Now the difference between these two is if  
10 one fly straight and level and want to do a quick turn it's instantaneous, for a very short period I will be able to rotate at 18 degrees per second but I can't maintain that turn rate. If I keep on turning I will eventually go to 9 degrees per second, so if you (indistinct) to tell you more or less how long it will take  
15 you to do a 360 degree turn.

(Indistinct) aircraft we were looking for was 60 dual seat aircraft and 32 single seat aircraft. If we go to page 131 we're still looking at the requirements, as we said there that the Mirage F1's was phased out in 1997, the Impala Fleet would  
20 have been phased out from 1997 to 2004 and the Cheetah-D's and C's from 2012 to 2016, that's why our requirement was for the first aircraft to be delivered not later than 2004 with initial operating capability meaning at least 16 aircraft were available in 2006 and we at that time (indistinct) and would not place a  
25 contract later than 1998.

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Then there were logistic requirements of 80% operational availability which means out of a fleet of, if you had a 100 aircraft at least 80 of them should always be available for operations, the meantime between failures we said are 4.5 hours and the maintenance man hour per flight hour of 8 which means that for every hour that we would flow [sic] we would use eight hours of people to repair or maintain the aircraft.

The Value System for the RFI we had added 12 mandatory parameters and it was there to determine if the aircraft system complies to the minimum requirement and we had 63 discriminatory parameters to determine to what extent the qualifying contender satisfy the SAAF's requirement. I will go, I will keep on with the submission, the presentation but it's all referred back to in the summary in front.

The next thing we would like to speak about on page 132 is the countries that were invited to provide proposals, the invitation for an RFI was sent out to Germany for the AT-2000, France for the Mirage 2000, Canada for the CF5, Britain for the Hawk and the Gripen, Italy for the super AMX, the Yak-130 and the MB339, Spain did not provide any responses, Brazil did not provide any responses, Norway did not provide any responses and then we receive two unsolicited proposals from Russia for a MIG 29, from Czech Republic for a L159. These are the people that responded to our Request for

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Information.

If I move to page 133 there was the Military Value System as put forward to us in October where we had to look at the operational capability, functionality, sustainability  
5 strategic, industrial and total lifecycle cost, however, in November they instructed us to use the formula as on page 134 where Military Value was considered, the Military Value divided by the acquisition cost give you a military Figure of Merit. Are you with me on page 134?

10 ADV MPHAGA: Are you able to indicate why there was this change in terms of the calculation of Military Value?

MR FERREIRA: Chair, I cannot respond to that. We got a letter from the International Government Management Committee, on the one day they say use this Value System and  
15 then a month later they say use this Value System, all we did is we executed the request as from them.

ADV MPHAGA: You may proceed.

MR FERREIRA: On page 135 was the process that we followed for the evaluation of the ALFA RFI, we had a revised  
20 GRS, then we had a very high level Value System, we issued the Request for Information, we received the proposals, we looked at the mandatory requirement as per the Request for Information, those who met that, the remaining options, we did a discriminatory evaluation using the Value System, we've done  
25 a cost analysis, we determined the value for money, we did a

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risk analysis, we performed a tradeoff and then we made a recommendation.

If I go to page 136 looking at the mandatory requirements the aircraft that potentially satisfy the ALFA  
5 mandatory requirements, we looked at the Gripen, there was one rectifiable non-conformance, there was 12 that with money we were able to meet the requirements, the AT-2000, the one non-conformance, (indistinct) that we could do with cost and Mirage that only had one non-conformance.

10 These, as you said there the cost to have these non-conformance being resolved were not included in the basic flyway cost but costed separately. The other one on the Gripen, the non-conformance there was that the Government approval for the re-export of (indistinct) equipment still  
15 outstanding, because of all the American content in the Gripen you can only buy the Gripen if the Swedish could provide us with an expert permission from the United States, that was one of the biggest problems we had on the Gripen, the other thing there on AT-2000 non-conformance was while the aircraft is on  
20 the ground the turning radius of 8mm, to achieve this with the AT-2000 will require using breaking the pivot and nose wheel when operating out of (indistinct) at Hoedspruit.

If you know how we operate at Hoedspruit, Hoedspruit got revetments where the aircraft is parked to  
25 protect it from outside interference or attacks, now in order to

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taxi out of these revetments you have to make a very short turn as you leave the reventment because in front of the revetment there's also a wall as part of the protection and this required that you have to be able to turn the aircraft within 8 metres, 5 that's from where this requirement comes from.

All above three aircraft are all supersonic, (indistinct) Light Fighters that best specified the mandatory SAAF requirements and continued to discriminatory Value System cost analysis and risk analysis. So, they were all large 10 fighter aircraft. At that time on page 137 we were also looking at combinations between Hawk's and Gripen's but I would not like at this point in time to continue on this slide, that Hawk is then being addressed separately later in the process, the package.

15 If I move to page 138 you will see the aircraft that time for the ALFA that didn't make it, the L159, they had nine non-conformances of which six we could do with cost options. the Super AMX had seven non-conformances and eight that we could resolve with cost, the Yak-130 had seven non- 20 conformance and 13 that you could resolve by cost, and the MIG 29 was (indistinct) proposal had five non-conformances, it's the operating cost, engine and airframe life and flying quality and five that we could have resolved with cost.

Also on the Yak-130 we said insufficient data was 25 provided to evaluate the aircraft against all the mandatory

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requirements and I note there with the exception of the MIG 29  
the above aircraft are all good subsonic ground attack aircraft  
but lacked the required performance for a feasible air defence  
role, they do not satisfy the ALFA mandatory requirements and  
5 are not further evaluated.

The MIG 29 is a dedicated supersonic Air Defence  
Fighter with limited airframe and engine life and with a high  
operating cost because of the two engines, its logistic system  
is not designed to SAAF support requirements and will impose  
10 a major cost penalty to support locally. Although we say we  
should eliminate it from the evaluation we actually continued  
and looked at the MIG 29 discriminatory factors also.

On page 39 we were looking then at combined Lead-  
In Fighter Trainers that the (indistinct) offer where we looked  
15 at the Hawk and the 339 and these (indistinct) Lead-In Fighter  
trainers do not meet the ALFA mandatory requirements but are  
taken note but not further evaluated. Although they provided  
proposals we did not consider them any further, we were now  
looking at the high performance multi-role Light Fighter  
20 Aircraft.

The CF5 Aircraft on offer from Canada were 20  
single seat and three dual seat aircraft withdrawn from the  
Canadian Air Force service and offered with a structural  
avionics upgrade. No replies to the RFI questions were  
25 provided, the CF5 aircraft were not further evaluated. Again

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this was an old aircraft, so we did not consider looking at an old aircraft. If I move to page ...

CHAIRPERSON: I'm sorry, before you move on, by the way there's (indistinct), this MB339 FD, which one is it?

5 MR FERREIRA: That is the Aermacchi, that is Aermacchi Aircraft. Chair, that is the Aermacchi Aircraft.

CHAIRPERSON: Thank you.

MR FERREIRA: On page 140 you will see our Military Value results where we were looking at the operational  
10 functionality, the total lifecycle cost and then there's a Sustainability Strategic. From the Military Operational Value the AT-2000 scored very high but you will notice that all three those aircraft scored similarly, it's not that the one exceeded the other one by far the way we measure it here in terms of  
15 operational functionality. In terms of life cycle cost there was a major difference between the AT-2000, the paper aeroplane and the Gripen and in terms of the sustainability they were all more or less, they scored the same figures.

The result of the Military Value that was put forward  
20 after the RFI phase was the AT-2000 at 64, the Moross 2000 at 61 and the Gripen at 59, so they are very similar, including cost, in terms of performance. Remember here we divide the value by cost. On the next page we look at the results excluding cost.

25 ADV MPHAGA: You divide the Military Value by cost, not

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only the value?

MR FERREIRA: Yes, this is including cost, not divide ...  
Sorry. There you have got the cost at the bottom as a figure.  
There we've got cost, you will see we've got operational value,  
5 total lifecycle cost and sustainability, not divide, sorry, we're  
still adding together. If I take cost out which is total lifecycle  
cost on the next page you will see we only have military  
operating function and the sustainability as strategic industrial.  
If you recall back we were looking at the Value System where  
10 cost was added to, operational value was added to strategic  
and not yet where you divide. Here it was basically the same  
ranking except that Moross 2000 and the Gripen scored the  
same value.

If we go to page 142 you can see there there is  
15 some cost. Because this is RFI information only the unit cost  
of the aircraft has been masked, all the other costs are  
available, the total programme cost in Dollars for the AT-2000  
would have been \$1 657bn, the Gripen \$2 02bn and the Mirage  
2000 \$1 97bn. And there is some notes how these cost were  
20 determined.

ADV MPHAGA: Maybe you should explain to the  
Commission what are the programme costs.

MR FERREIRA: The?

ADV MPHAGA: The programme costs.

25 MR FERREIRA: The programme cost consisted out of the

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fly weight cost of the different aircraft systems, then the cost of options to bring them all up to the same level so that we could compare, what we say for instance on the AT-2000, we would have invested another \$62 million to get it to a comparative baseline than the Gripen and the Moross 2000 because they did not offer all the same configuration. We're looking at mission support systems, operational support, logistic support, the programme management on the contractor's side, the cost of shipping because a system that's been delivered in a foreign country will cost us more to get delivered to the country than a system that is built in South Africa, so we had to look at that cost.

We also then considered the VAT at 50% because everything that has been brought into this country we have to pay VAT on, it was part of the programme cost, it made provision for a risk contingency that we say we might have to pay at the extra in order to manage the risk, like on the AT-2000 because it's a paper aeroplane it might cost more money to have some of these risk resolved and we made a provision for that. On the Moross 2000 there was some development cost and if you add this all up together that's the programme cost, it's not the contract cost, it's the programme cost because you have to add these other factors with the cost in order to get the aircraft delivery to the base.

On page 143 we were looking at lifecycle cost, how

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much it will cost us to operate these aircraft over the 30 years, if you remember that time we were planning to fly 5 800 hours per year for 30 years and there is a certain cost per flight hour, although we calculated the lifecycle cost we never used that cost. On page 144 we then look at cost effectiveness, what's meant there is you divide the operational effectiveness that they received with our cost before by the acquisition cost and we got a Military Figure of Merit, if you look at the Military Figure of Merit the AT-2000 got 36.12, the Mirage 2000 got 29.94 and the Gripen 29.21, and after normalisation, and what we mean by normalisation is we took the aircraft with the highest Military Value and divide that by its figure, it will give me one and if I divide the Gripen and the Mirage by the same figure I got the respectively 0.83 and 0.81 and that's what we mean by normalisation.

You multiply this by a 100 to get a to a 100, so we normalised the score and if we took lifecycle cost into account the figures are at the bottom and again the results are very similar in terms of the AT-2000 still were the best aircraft but in this case the Gripen scored higher than the Mirage because it was cheaper to operate per flight hour.

Then we also start looking at combinations. When we did this exercise you will recall that they already were considering the back to the three-tier system, so we were looking at what other aircraft we could match with these

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aircraft and what will the financial impact be, again there you look to cost of having Gripen's and Hawk's, 40 Gripen and eight Hawk's and all the calculations was done there, the (indistinct) cost would have gone up and operating cost would have reduced with the Hawk because it's cheaper to fly Hawk than to fly Gripen.

ADV MPHAGA: Maybe was there a particular reason why only the Hawk was taken into this combination and not other aircraft?

10 MR FERREIRA: These analysis was done to get a gut feel that must go to cost, it meant nothing in terms of moving forward, the only result out of this was which three aircraft qualified to receive proposals for the ALFA aircraft, but we did start looking at combinations. The table on page 146 we have already been through, it's the same one before where we were looking at the Military Value normalised.

Then looking at risk the aircraft with the lowest risk was the Mirage 2000, the Gripen had a risk of 180 and the aircraft with the highest risk were the AT-2000 which you expect because it's a paper aeroplane that still needs to be developed and you don't know where it's going and also had a financial implication. Now after we've normalised these aircraft you can see that the Gripen the risk, and be careful, risk works the opposite way around, the aircraft with the lowest risk is actually the aircraft you should buy and here you can

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see the normalised risk to one formula was 2 000, Gripen 0.72 and 80.44.

We did nothing with this risk except we use it to do our tradeoff analysis to see what the impact is going to be, it wasn't moved into any formula, into any calculations on the ALFA aircraft. On page 148 there's a risk analysis, again as I said on the Gripen the major risk was a US Government approval for the re-export and through life support of the Gripen Aircraft and our abatement strategy was then to get US Government approval and written commitment before the contract signature, if we couldn't get that we could not contract for the Gripen.

The Mirage 2000 the major risk was cost currently based on limited information and estimates and it can escalate beyond budget before contracting, of course it's a paper aeroplane and all the other risks were considered manageable, normal acquisition programme risk, and we the way we want to abate this risk was to get firm cost information from the (indistinct), that's the Mirage 2000, it's not a paper aeroplane, I'm sorry, I mixed up the AT, and perform good programme management.

So, there was a possibility that the Mirage 2000 price could have increased between this point and where you actually start contracting. The AT-2000, the paper aeroplane there's a major risk that the aircraft delivery delayed for a first

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delivery period of 2007, it still need to be developed, certified, tested and built and productionised. Our budget plan was to apply contractual penalties for late delivery, that was our abatement plan, there was a risk of insufficient funds to finance the development, our abatement plan was get data and German Government written commitment before the contract signature, we never got German Government written commitment, they did not put their own money into the system.

Orders predicted in the business case are not forthcoming, the SAAF is the only operator in the world, there's a risk of that and if we end up as the only operator in the world it means that we would have carried the capability until the day that aircraft be retired from service. Again our abatement was looking at the contract for performance guarantees and specific performance parameters, if there were other operators or aircraft sold to other countries then you share that cost of support. And then contractual performance not achieved, again perform extensive programme management with an in-depth monitoring and control.

I've got on page 150 only a letter that was received from the Germans where they thank us for being able to participate in the programme and as they said they invested some company funds into this aircraft and that's where it ends. On page 151 is the tradeoff analysis, as you can see there the Gripen including cost rate third, excluding cost rate second,

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the cost of acquiring aircraft would have been R2 million, the normalised Military Value was 81, the cost effectiveness was 0.85, it scored risk 0.72 and the risk there was the US Government approval to be (indistinct, that summarised the Gripen.

5 The AT-2000 is called, both times it's called the first precision, it's cheaper to operate, acquisition cost of R1.6bn, the military normalised were 1, cost effectiveness normalised were 1 and it had a higher risk and you can see the risk as summarised there. The Mirage 2000 scored in both cases were second, acquisition cost 1.9, the Military Value was 0.83, the cost effectiveness, we take cost at 0.84 and at the lowest risk, score 1 and risk.

10 And on page 153 is our recommendation. And recommendation was that all three these contenders should receive a Request for Proposal, the AT-2000 came first, (indistinct) choice but it ranked first against the way it was measured, best cost effectiveness, also best operational capability, development programme but very high risk, less data and the German Government commit to the programme, also options that can best satisfy the SAAF requirement. Financial commitment during the (indistinct) next three years, low. There was no money put into this programme from outside.

25 The Mirage 2000 came second, it's the lowest

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technical and programme risk with high operational capability, the cost provisional estimate that has to be verified, they didn't give us good cost information. The Gripen that came third, a capable modern fighter with low development risk but high cost, all three above aircraft are considered acceptable to satisfy the SAAF requirement for an Advanced Light Fighter Aircraft, subject to risk being covered contractually and by Government-to-Government agreements.

The next few pages only gives you a graphical representation of where these aircraft ended up and it's a repetition of what we have already discussed up to now. On page 162, do you have page 162?

CHAIRPERSON: I do have page 162, but I can't see.

MR FERREIRA: But basically what 162 is our evaluation results filled into that form before you.

CHAIRPERSON: The letters are so small I can't even see here.

MR FERREIRA: No, but all I say is there ...

CHAIRPERSON: Oh.

MR FERREIRA: That is the results of the evaluation and (indistinct) put into it. It reads very small but I can read it if you want me to read some of them for you.

CHAIRPERSON: Maybe it might be better to read everything into the record which you think that it's important.

MR FERREIRA: Chair, I think important stuff, the final

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results we have already mentioned in our presentation with the scoring at a high level and the ranking, these are only the lower level detail of how the scoring was determined.

5 ADV MPHAGA: Would you say that it just really confirms the scores that you already mentioned for us?

MR FERREIRA: Yes Chair, it gives you the low level breakdown, how the different aircraft were scored, but the results, because this was done on a computer programme is indicated in the graphic representation before and was  
10 summarised in that, in the Value System, I'll tell you on which page. If you move to page 140 and 141 the final results are indicated there. And as I said before the purpose of RFI was to identify which aircraft will meet the SAAF's requirement and to rank them.

15 ADV MPHAGA: The document on page 162, is it possible that we can have it on A5 so that at least it can be, one can be able to see it with ease?

MR FERREIRA: I think we can try and enlarge it to an A5 document.

20 ADV MPHAGA: Thank you. Now the one question that I wanted to also pose before we go any further is that during the AFT RFI Evaluation Process the Gripen was excluded because it was unaffordable, so what made it possible now that we revisit it at this stage?

25 MR FERREIRA: If you recall the AFT was for a replacement

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of only the Impala MK1 and MK2 and here we are looking still when we did this evaluation we were looking at the two-tier, we were looking at the higher performance aircraft, also on AFT would have been required through the normal acquisition process where there were funds put away on the planning of the Defence Force, if you recall I think the figure we had on budget was \$646 million and we were thinking that we might be able to get \$800 million, so the Gripen exceeded that by far, so it was not considered, so in fact we were looking at a different aircraft and the AFT was measured against that different aircraft which is an Impala replacement with some operational capability. You will also recall that neither the 339 nor the Hawk featured on the AFT shortlist.

ADV MPHAGA: Thank you, then we may then proceed to the evaluation.

MR FERREIRA: I'm now moving back to my statement, we will repeat paragraph 4.6 again, it's on page 7. Alright:

*"In February 1998 the SAAF revisited the Staff Target 2/1994 and the Staff Requirement 2/1995 ...".*

If you remember those were the original AFT Staff Target and Staff Requirement.

*"... to include the reintroduction of the LIFT. On 6 March 1998 the AAC approved the updated Staff Target and updated Staff Requirement for the Project Ukhozi which now included the LIFT*

*component, acquisition, ...”.*

What we're trying to say is here we had the Staff Target and a Staff Requirement for the AFT, because they are bringing in the fighter aircraft the AFT Staff Target and Staff Requirement  
5 became the ALFA Staff Target and Staff Requirement but with, the values were operationally increased to meet the requirement of a light fighter and the same meeting they also then brought in the Staff Target and the Staff Requirement for the LIFT.

10 So, Ukhozi which started off as a replacement for the Impala Aircraft now became the replacement for the Cheetah and Mirage Aircraft, and I understand that General Bayne has given evidence on the revised Staff Target and Staff Requirement. I know it's a little bit confusing but that's what  
15 happened, now it moved from the replacement of the Impala Aircraft to become, the Ukhozi became the replacement of the Cheetah Aircraft.

ADV MPHAGA: Is it during the period when they moved from the two-tier to the three-tier?

20 MR FERREIRA: This was after they decided to move back to three-tier. If you remember the diagram in the beginning where the blue started as Impala Replacement and then we had a, we had the big blue, we looked at the Impala and the Cheetah, it now became the Cheetah replacement and then the  
25 Mirage replacement, and the green brought in the LIFT at the

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bottom between the ASTRA and the aircraft on top.

ADV MPHAGA: Okay, you may proceed.

MR FERREIRA: Alright.

5

*“The revised Ukhozi Programme replaced the Cheetah-C, the Cheetah-D, the Mirage F1 and the Impala MK2 with a modern economical multi-role Advanced Light Fighter Aircraft”.*

10

Which it became now known as the ALFA. The reason why it replaced the Impala MK2 is the Impala MK2 is a single seat Impala which were used as an operational aircraft by the South African Defence Force.

15

*“The ALFA system consisted out of air vehicle system and the ground based training system including the required support systems. All specified systems including the weapons system would be fully integrated, qualified and operational before delivery to the SAAF”.*

20

As I said before if you are buying aircraft you are not only buying an aircraft, you are buying the whole infrastructure around it, the mission simulators, the ground mission planning stations, the debriefing stations, the logistic support to operate this aircraft and also the logistic support to maintain the ground systems, the simulators.

25

*“The ground-based training system of ALFA was required to provide all the flight and theoretical*

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*ground training requirements for the training school and the operational squadron”.*

Again the way that the Air Force train their pilots is that they will first fly in a simulator before they will actually go and fly the aircraft and on a regular basis even the qualified pilots would still fly the simulator because there are some emergencies which could only be tested in the simulator and not in a real aircraft because you might lose the aircraft if you do it in a real aircraft, so they are always training for if something goes wrong so that the day it does happen in the air they know what to do to operate the aircraft safely, and also the operating a simulator is much cheaper than flying an aeroplane and the more we can utilise the simulator the better it is for us, so you will find on a squadron that on a regular basis all the pilots have to do a certain amount of simulator training before they fly again.

Also if for a long period if they haven't flown for a certain period you first need to go and refresh yourself in the simulator before actually getting into the aircraft. Now on 28 February 1998 the AAC approved an RFO for distribution to the three shortlisted suppliers to solicit offers for (indistinct) aircraft. Now I would like us to go to the RFO which is "JF11", page 281.

ADV MPHAGA: The shortlisted suppliers were the Gripen, the AT-200 [sic] and the Mirage?

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MR FERREIRA: That's correct. Chair, if you can recall when we spoke about the RFI that went out we were speaking about a document of maximum 20 pages, the RFO that were sent out, the total package that went out were in the order of  
5 about 700 pages, it is a much more comprehensive document than the RFI. The RFO went out on 28 February with a closing date of 14 May 1998 and I will use, I would now like us to walk through the RFO for us to understand what did we ask in Request for Offer.

10 You can page through the RFO but my first statement I'd like to make is on page 285:

*"The South African Air Force needs to rationalise and replace the phased out Mirage F1-AZ Fighter (indistinct) of 22 aircraft".*

15 At that time.

*"The Impala MK2 Light Fighter fleet of 32 aircraft and the current Cheetah-C and D Medium Fighter of 48 aircraft with fleet of modern supersonic multi-role Advanced Light Fighter Aircraft".*

20 So we are replacing four different aircraft with a single dual Light Fighter Aircraft. Only to inform the Chair that the Cheetah-D and the Cheetah-C were totally two different types of aircraft with different avionics in them, the one wasn't a  
25 aircraft. Down the ... Okay:

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*“The South African Air Force requires an ALFA fleet to form the nucleus of the combat capability of the SANDF. The ALFA must have the capability to carry out a wide spectrum of multi-role combat missions successfully”.*

5

Now multi-role, in the past we had dedicated aircraft doing dedicated roles, we had Mirage AFT aircraft that were there for reconnaissance, their main purpose was to do reconnaissance, they had built-in cameras and they took photographs of threat areas, then we had the aircraft in the air-to-air role like the Mirage F1-CZ, it was optimised as an air-to-air aircraft, it had surrounded (indistinct) radar in it, which gave it that capability. Then we had an aircraft that was optimised for an air-to-ground role like Mirage F1-AZ, it had bombing computers in there and it was, the whole avionic system were around delivering of bombs accurately on the target.

10

15

These aircraft could do cross-role but not as good as the dedicated aircraft, so what we were looking here is for a single airframe to do all that work.

20

*“In the air combat role the ALFA must be able to intercept and attack enemy aircraft at supersonic speeds up to 200 nautical miles from home”.*

The home base.

*“In the strike role ...”.*

25

The air-to-ground role:

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*“... the ALFA must be able to deliver a credible payload at high subsonic speeds at low level with a radius of action in a low profile”.*

We mentioned it takes off low, it goes to a target at a low profile and return at a low profile:

*“... at least 108 nautical miles. The ALFA must therefore be a robust and reliable system capable of surviving and being effective in a high-threat environment”.*

As I said before a high threat environment can be people on the ground with shoulder launched ground-to-air missiles, there can be anti-aircraft on the ground, there can be surface-to-air SAM missile sites or there can even be an airborne threat that you have to take into consideration and all these drive what systems are on the aircraft in order to survive in that environment.

*“The dual seater must have an inherent capability to safely convert the Lead-In Fighter and trainer, LIFT graduate fighter pilots into the single seater aircraft and execute the required combat training and operational status”.*

So you take a young pilot with some fast yet experience that he gained on a LIFT aircraft and you put him into the Gripen, the Gripen operates differently, it's a supersonic aircraft.

*“The dual seater will also be utilised for fighter*

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*navigative training and must be fully operational in all roles”.*

There is some missions where you need somebody in the back cockpit to assist the SAAF in operational tasks to help perform it like a weapons operator, if you have very clever weapons you want to release and you need somebody at the back of it to manage this weapon he has to fly with the pilot and he needs to get trained on that aircraft.

10 *“The ALFA Aircraft must consist of 20 single seat fighter aircraft and eight dual seat aircraft of which one must be fully instrumented for flight test requirements”.*

Now if you say one is fully instrumented these are the aircraft that you will see at the test flight and development centre, if you open the aircraft you would notice there are orange wiring in there, those are instrumentation that’s on the aircraft which enables you when you do any testing to monitor and record the results while flying, sometimes you store it onboard, sometimes you communicate that to ground stations to go through the data and analyse the data, that’s the instrument of the aircraft, it had more sensors also on the aircraft and it had more things you measured while you are flying, the other aircraft is not fully instrumented.

25 *“The ALFA system must additionally include a mission support and training system to ensure cost*

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*effective transition from the ALFA Aircraft up to the full operational proficiency and to continuously maintain peak proficiency”.*

That's what I said before that the pilots also need to go and fly  
5 the simulator on a regular basis in order to maintain their  
operational readiness. Mission planning or mission support  
also consist out of a system where on the ground you plan your  
mission, you put in your weigh points, the turning points of  
where you are going to fly, you put in your weapons load, you  
10 put in your targets, you put in your fuel consumption and you  
download this information into the aircraft. While you are  
flying you can make sure you are on the right track, you can  
verify your fuel consumption against what you plan and also  
you record during a flight, you also record a lot of parameters.

15 When you return back to the base you download the  
data and you can actually debrief on the system to tell you  
what exactly you did during your flight, were you on course and  
if you did air-to-air combat where was your target in front of  
you and by putting the data in on more than one aircraft you  
20 can actually as they say have “a God's view”, looking down and  
see how the fight actually transgressed and if somebody had  
claimed a kill during practice, was he in the right position to  
claim that kill.

It's very important from a training perspective, you  
25 must also remember that 99% of the time pilots train how to

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fight, they sit there and every sortie they fly now is in effect a training sortie, although they might do ACN it's still a training sortie so that if they are required in the future to be operational, if they get into the position where they had to  
5 make war they would be able to make war, if we don't train for war we can't go and fight, so we keep, on a constant basis we are busy training. Also:

*"Operational support equipment ..."*

And I speak there about fuel tanks, pylons, mission pods:

10 *"... to ensure that operational tasks can be executed using the SAAF inventory of weaponry and mission equipment"*.

Now if you buy an aeroplane the aeroplane, it's a nice, clean configuration, for you to go and throw bombs, carry bombs, you  
15 need to attach a pylon onto the aircraft, either onto the wing or onto the fuselage and attached to this pylon comes your bomb, you do not attach a bomb directly to the airframe, that is what we call mission support, operational support equipment, external tanks, they are attached to a pylon which is attached  
20 to the aircraft. Any (indistinct) is attached to a pylon, now all these are added to the price of the aircraft. And:

*"The logistic support system to provide for economical logistic support of all components of the ALFA system throughout the service life"*.

25 Here we are speaking about spare parts, we are speaking about

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ground support equipment, we are speaking about the training of the ground people, we are speaking about the technical publications they require in order to do the task and we are also speaking about support on support, if I buy a piece of test equipment to support the aircraft I must also be able to support that piece of test equipment, so that's all what we say log support. And all these components are defined in detail in the RFO as you move through the RFO, but I will, on page 1.1 again:

10                   *"The objective of the request for final offer is to solicit a comprehensive and detailed final offer for a supply of the ALFA System complying to the requirements as defined in this document".*

The day we went out on RFO we closed the RFI, all the data of RFI has been archived, we never looked back to the RFI, the RFI was there to identify the shortlist of contenders and to rank them, then now we forget about the RFI, now we concentrate on the RFO and as you can see here the RFO are asking for much more detail, it's a much more comprehensive response. Also if you recall the RFI was about 20 pages, the level of effort that the contractor puts into answering an RFI is not that much, so he doesn't spend a lot of money. When you get to the RFO the level of effort from the contractor to respond to this RFO is much more and it costs a contractor millions of Rand in order to answer an RFO for you if you look

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at the data they had to provide for us.

ADV MPHAGA: If I can clarify that in compiling the RFO do you also take into account the URS?

MR FERREIRA: The RFO is based on the URS, if you read  
5 General Bayne's statement we draw from there, we draw a  
(indistinct) that the RFO is based on actual requirements in the  
URS, the data requirements as well as the highly desirable  
requirements. If you recall when we did the RFI we took an  
extract of those parameters only and not everything, now we  
10 are taking out everything into account.

ADV MPHAGA: But are there any additions over and above  
the URS or it's limited to the URS only?

MR FERREIRA: The RFI, there is additions, contractual  
additions for, if we go through it you will see what I add by  
15 that, ARMSCOR also bring its own documentation into play, you  
got engineering standards, we got terms and conditions as all  
added to the RFI.

ADV MPHAGA: Is it RFI or RFO?

MR FERREIRA: Sorry Chair, RFO.

20 ADV MPHAGA: Thank you. Okay, you may proceed.

MR FERREIRA: Alright. On page 286 the only thing I want  
to highlight there:

25 *"In terms of timescales was that the Cheetah  
Aircraft was serviceable beyond 2008 and the  
delivery of the single seat aircraft can be phased in*

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*over a longer period, first delivery may start during 2008”.*

ADV MPHAGA: Can you just refer the Commission where you are reading on page 286, is it paragraph 3?

5 MR FERREIRA: In page 286 about halfway down the page. What I want to draw attention here is before we were speaking about the date of 2005, now we're looking at the replacement of the Cheetah, we said we need to be in service by 2008 and when we come to our (indistinct) later this becomes a very  
10 important date as the Cheetah Aircraft was phased out by that day. Delivery of the single set aircraft can be phased over a longer period, first delivery must start during 2008, final delivery in December 2012. I want to highlight the date of 2008 here, it's a very important date. I'm now on page 287.  
15 What I would like to highlight on this page is the “Contracting Parties” definition. Are you ready Sir, Commission? Alright:

*“The South African Air Force is the end user or called the user of the intended ALFA system. The operational requirement for the ALFA system was  
20 defined by the SAAF and operational test evaluation and final acceptance will be conducted by the SAAF against operational requirement”.*

So, they will measure the aircraft against what they ask us to buy for them.

25 *For the ALFA system acquisition programme the*

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*SAAF is represented by the director Projects SAAF, director Overall Programme Execution and implementation responsible was delegated to the SAAF project officer”.*

5 Now in our Integrated Project Team the CPO or the chief project officer is a co-head of the Joint Project Team and is the formal interface between the Joint Project Team and the SAAF management and the various SAAF functions.

10 *“The CPO has an overall responsibility for integrating the ALFA system Level 5 in the system hierarchy into the SAAF as a combat system level 6, and (indistinct) including the (indistinct) of personal operation and finances”.*

15 Now to explain this we were an Integrated Project Team, the SAAF as part of this project team were responsible or were the interface between us and the Air Force, we can't run every time into the Air Force with our requirements, he had to clarify those (indistinct) but more important once the aircraft was delivered to us he was responsible to make sure that that  
20 airframe operates in the SAAF environment at Level 6, that all the doctrines were put in place, all the documentation you require you to operate the squadron was established by them, that the people that we trained at level 5, they nominate people, we train them but they are (indistinct), they are being  
25 identified in the same environment for us to train and then

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when they go back they are being utilised in the correct positions.

When we say the integration of the system he was also responsible for the facilities, we need, the risk equipment  
5 requires new or modified facilities, we from the project team will identify what needs to be done but he as the interface will ensure with the Department of Public Works that these facilities have been changed, we never as a project or as ARMSCOR take that responsibility, it's always the SAAF that  
10 take out that responsibility to make sure the squadron is established, to make sure that the right people has been identified and posted to where they should be, for instance the officer commanding would have been posted in long before the aircraft is there, so then he already established the squadron,  
15 get the things in place that when the aircraft arrived they can start using the aircraft, I hope that clarifies the role of the CPO.

*“ARMSCOR is a delegated acquisition agency of the SAAF and as such the legal contracting party,  
20 the buyer for the procurement of the ALFA system. ARMSCOR must acquire the ALFA system according to the conditions jointly agreed between the SAAF and ARMSCOR. For the ALFA System Acquisition Programme ARMSCOR is represented by the senior  
25 manager Aircraft Systems ARMSCOR, direct*

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5                    *responsible for the execution of the ALFA Acquisition Programme, is delegated to the ARMSCOR Programme Manager. For the ALFA Acquisition Programme the APN co-heads the Joint Project Team with the CPO but is the formal interface between the SAAF represented by the CPO and the selected main contractor”.*

Any communication, correspondence to the contractor is done by ARMSCOR, we are the contracting party, we are the legal  
10                    entity that can be taken to court, not the DoD, so that was our role, together we formed an Integrated Project Team managing this programme, so we had clearly defined roles, the CP, the project officer looking into the Air Force environment from the project upwards and we looking to the contracting party from  
15                    the product downwards.

A very good example is that we brought into our aircraft secure communications, the specification was provided by the SAAF in terms of secure communications, we as the project, with the contractor incorporated the (indistinct)  
20                    communications, but the Air Force must make sure that you put a higher level process in place in order to provide the encrypting algorithms (indistinct) Air Force requirement, that the other systems in the Air Force can speak to us on secure coms because I can only do what this aircraft say, I can't go  
25                    and make sure that the Corvette's have the same secure

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communication, so somebody up at level 7 is coordinating that and the Air Force must make sure that we get that done into the project, be implemented correctly.

5                   *“The main contractor is the selected offerer for the ALFA system, the main contract will have the total contractual responsibility for the execution of the ALFA System Acquisition Programme and will be the formal interface to all the subcontractors. The main contractor will be appointed by the placement of a*  
10                   *contractor by ARMSCOR”.*

So, we do not speak to subcontractors, even up to today we still speak to the main contractor who speaks to his subcontractors, if we are unhappy about the performance of the aircraft we complain to the main contractor and he must resolve  
15                   the issue with his subcontractors, so there is clear boundaries in this programme and in both programmes these boundaries were adhered to. I would like to move to page 289, that figure gives you an overall structure of the Request for Offer and I will only speak you, talk you through the figure, we already  
20                   spoke about the introduction, this section we will speak about the RFO structure, how it's been put together in the document so that you know where to go and look for something, and the response to the question about what was also included, the terms and conditions of tender we attached to this document  
25                   Case Standard 10 which is the rules and procedures for offers,

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it's an ARMSCOR document and say how you complete an RFO, what timescales, what form must be completed and Chapter, Section 4 we got acquisition objects, there we refer to the 30 single seat aircraft which we refer to in Attachment "A" which  
5 was the ALFA Functional Specification, the dual seat aircraft also referred to as the ALFA Functional Specification attachment, the instrumented aircraft, we had the same offer specification, the mission support and training system was also Appendix "A", the offer and function specification, the  
10 operational support requirement as detailed in offer and function specification and then the logistic system which were in the ALFA specification as well in Appendix "B" which was a concept integrated logistic support plan which I wrote.

So, only on those there were two main attachments,  
15 the one was the aircraft functional specification, what we expect this aircraft to do and the other one was the support concept where we already say how we intend to support this aircraft or if not, what we expect the contractor to put in his proposal to say how he's going to meet this.

20 Then we were speaking about acquisition management, again referring there to terms and conditions, our opening bid is to attach Case Standard 20, ARMSCOR General (Indistinct) Contract, but they responded with a dedicated terms and conditions so that we do not accept ARMSCOR's  
25 standards, that was a purpose written contract, our project

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management requirement, our engineering management requirement, again we attached Case Standard 621 which is our technical conditions and an (indistinct) standards, and then the minimum airworthiness requirements was attached as an appendix which basically was based on (indistinct) Standard 970, the UK standard, so what we expect there that should be delivered by this aircraft to meet our minimum airworthiness requirement.

And then we attached to, we had the Industrial Participation which had an attachment, the Industrial Participation Guidelines, we were saying something about financing in the proposal and then we gave them instructions on how to complete this offer, if everyone completes the offers differently it will be a nightmare to evaluate these against each other, by completing this offer in the set format we could compare and go through it in a very structured way and as you can see if we compare this to our (indistinct) it's a lot more information being asked here and all this information are aircraft specific for us, there's no general conditions, quality assurance plans of the company, it's how they are going to do quality assurance for us on this programme.

For more detail if you page through that thing you will see that all these have been (indistinct) to the next level, I think we have described this in detail up until now and I would then like to move to page 295. If there is any questions please

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ask me and I will respond to that. I want to highlight paragraph 3.1.1 "Procedure" on 295:

5           *"The procedure for the submission of offer and the instruction and conditions to be adhered to by the offerer was set out herein. The buyer reserves the right, however, to deviate from the prescribed RFO instructions and conditions in any case where such a deviation are deemed justified".*

10       What we are saying here, when we reduced the number of aircraft we are not necessarily going to re-issue the RFO, we do have the right to make changes to this based on the information provided to us. The next paragraph I want to highlight is on page 297, paragraph 3.1.12:

15           *"Negotiability of Quotation. Notwithstanding any provision hereunder contained implying otherwise the buyer at all times reserve the right to enter into negotiations with the offerer regarding the prices quoted or any other condition of contract prior to the contract being awarded. In such an event any information obtained will be treated as confidential by the buyer and under no circumstances will any information be divulged to other prospective*  
20           *contenders".*

25       So, we had the right once we sent out the RFO to look at possible changes and to go into contract negotiation. On page

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298, the next page, ...

ADV MPHAGA: I see on 3.1.10 it says that:

*“The offerer shall supply audited income statements and balance sheet for the last three years”.*

5 Why was it necessary for that?

MR FERREIRA: Chair, if you would recall one of the items that we were looking here is also finance, we put in a whole paragraph on finance, I'll tell you where you can find more on the financing, but one of our requirements was to get financial  
10 statements from them. You also go back to paragraph 7, we will have more detail on financing.

ADV MPHAGA: But the negotiability of quotation, would that not be prejudicial to the other contenders if the buyer negotiates with the suppliers without their knowledge?

15 MR FERREIRA: What we did here is we were still evaluating, if we had to clarify information we might ask all the contenders to provide clarifying information, once we started a proposal, remember the proposal might not meet our requirements 100% but through a system we identify this is one  
20 we would like to contract with, if we during contract negotiations do not agree or resolve the issues we can always open up and negotiate with another contender from that point onwards.

We will end up with a preferred person we would  
25 like to negotiate, in our ARMSCOR system I could put in

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submissions (indistinct) I would like to negotiate a contract with this person but if I do not achieve, get into a contract condition with him I can always move, revert back to one of the other people that provide quotations, you must remember you will never get a 100% figure if you go up and contract unless you buy a product off the shelf with (indistinct) and even there there might be terms and conditions and you need to discuss. On page 298 paragraph 3.1.71:

10 *“Offerers designed to submit an alternative offer not strictly in accordance with the specification and/or requirements may do so provided all the information requested in the RFO is furnished”.*

Although we select an aircraft, if he wants to give us two options, he's allowed to give us two options, he can give us an option within his avionic system as well as an option with the South African avionic system, we're not preventing him giving those options as long as he adhere to the information as we requested here. My next comment I want to make on the RFO is on page 303 paragraph 3.2.4, I only want to highlight the last part of that paragraph:

20 *“Communications will not be done via an agent and/or representative other than an employee of the offerer. Contracting will also not be done via any agent and/or representative of the offerer”.*

25 We do not speak to agents or people that say they act on

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behalf of main contractors, we only speak to the people that make the offer to us. So, I, we have no, we have, like I say, we have no contact with any of the so-called agents that people have here, we only have contact with the offerer. The next  
5 comment I would like to make is on page 307 paragraph 3.2.10.1.

ADV MPHAGA: Before you go to 307 maybe just to highlight on 305 the first paragraph there, or 3.2.8 saying that: "The applicable law...", 3.2.8:

10 *"The offerers should take note that an order that will be placed on a successful offerer would be subject to the Republic of South African law".*

MR FERREIRA: That was a requirement, we need to see in the Supply Terms what was the ... This is one again the word  
15 "will", say we would like it to be South African law, it's not it shall be South African law, so there can be a deviation from there, only also for a backdrop information while we're here, the way you read a Request for Offer, when we use the word "shall" it means it's mandatory, you can't deviate from that,  
20 when you use the word "should" or "will" it means it's a nice to have but we are prepared to reconsider that, so you will find they say at aircraft speed shall be so many knots, but should be so many, which means that the mandatory requirement they say is 500 knots, but we would actually like an aircraft that can  
25 do 600 knots. If you read these documents that's how you

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5 should understand it, the word "will" means it's not mandatory for it to be South African law, but we would like it to be South African law, if it becomes a non-negotiable it says "shall be South African law" and then it becomes a mandatory requirement.

ADV MPHAGA: Can I just ... Maybe with having in mind the challenges that the Gripen had I want to refer you to 3.2.9.1 on page 305 where it says that:

10 *"Any offerer responding to this Request for Offer shall take note that it is in contravention of US Legislation to supply any US origin defence article service or technical data as defined in the International Traffic Arms Regulation".*

15 But there is something that the Gripen's maybe would have taken note of in respect of any supply of its equipment [sic]?

MR FERREIRA: Chair, this was an instruction put out to them as part of the Request for Offer, it's standard ARMSCOR condition these days but we have to adhere to the ITA Regulations, and also it says that we need to get permission and that if you don't (indistinct) things, eventually they got permission to sell us these aircraft, otherwise we could have not continued with them contracting.

ADV MPHAGA: Thank you. You may proceed.

25 MR FERREIRA: On page 307 all I want to highlight there is 3.2.10.1:

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5           *“We had a business conference to which all offerers were invited and took place at the buyer’s facility on the 16<sup>th</sup> to the 18<sup>th</sup> February. The purpose of the Bidders Conference is for the buyer to answer questions from the offerers on matters relating to the RFO, the Bidders Conference is the sole opportunity to seek clarification of the RFO”.*

10           We had all three offerers together in the same room so that we provide them with an answer, they all receive the same answer, if we provide the answer later in the minutes of the meeting it was sent to all three of the offerers at the same time in order to prevent one offerer getting preferenced information that the other one will not be getting.

15           *“They also visited the bases to see how we operate the aircraft”.*

            The next one I want to highlight is on page 308, we did not provide the offerers with the detailed evaluation, however, if you look about 1/3 down the page:

20           *“The buyer will assess the offer against at least the following high-level criteria ...”.*

            So, we gave them an indication how we are going to measure them:

25           *“... mission effectiveness, performance of equipment and support systems in achieving the ALFA operational requirements”.*

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We said we were going to look at those.

*“Lifecycle cost. The cost of acquiring and supporting of the total system throughout its life. Risk”.*

5 These are the factors that can influence the success of the project.

10 *“South African industry involvement. All requirements in the function specification of Advanced Light Fighter Aircraft System are classified as mandatory, highly desirable. In the assessment of the offerers to select the preferred main contractor the offers will be evaluated and rated according to its compliance in the stated requirements according to the following priorities;*

15 *compliance to the mandatory requirements, compliance to highly desirable requirements, compliance to the acquisition management requirements, compliance to the logistic support requirements, compliance to the desirable*

20 *requirements”.*

One of the items they had to give us back was a cross-reference matrix indicating every compliance, what they claimed about, how they claimed against it, were they complying or not complying and where the evidence of their

25 compliance can be found in the documentation. This

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compliance matrix became part of the contracted documentation, even today we go back to that and say here you claimed compliance so you'd better meet the requirements.

5 The last issue I would like to discuss on the RFO based on the question on finance is if we look at paragraph 7 on page 336. We issued a single Request for Offer that had to cover all the basis of the evaluation and as you might recall we already had the military performance, we looked at DIP and the other item that was also considered was financial. Now as  
10 part of their proposal they had to put in a financing proposal section, it's a critical consideration in the selection of the main contractor and must be extensively addressed in the offer.

*"The financing offers will be separately adjudicated according to the financing Value System and will  
15 lead to a separate financing contract in support of the main contract".*

There you can see what we asked them in the financing requirements as put down, a grace period of four years, the criteria measured against, a repayment period of 50 years as  
20 well as 20 years grace period included, it must be at all cost including the proposal for delivery free onboard or sea port. What we mean by that is the point where the responsibility change, if I say free onboard all the costs getting the item to that location is for the contractor, all the costs from that  
25 location to where it should be delivered is for us, so if they

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delivered free onboard the moment that item moves onto the ship or onto the aircraft then we start picking up the cost, it all depends what was contracted.

5                   *“Prices must be equated in 1998 economic conditions. The currency denominations must be expressed and used in United States Dollars”.*

And there was how the finance proposal should have looked. When we received the responses the responses were split into three separate packages, we received the technical part of the proposals, the DIP and NIP people received the Industrial Participation of the proposals and the finance people received the financing section of the offer, we never saw what the other people received, we concentrated our evaluation on that part.

10                   As I said this was the Request for Offer that went out and you compare this to the RFI there's a whole lot of more information required, it is a total different phase in the acquisition programme and the response to this is a much larger level of effort than for an RFI. I don't know if there is any questions on the RFO?

15                   As I said this was the Request for Offer that went out and you compare this to the RFI there's a whole lot of more information required, it is a total different phase in the acquisition programme and the response to this is a much larger level of effort than for an RFI. I don't know if there is any questions on the RFO?

20                   ADV MPHAGA:       Yes, I just wanted to ask a question on page 309 of the RFO, paragraph 3.2.14 which says that:

*“Offerers obtain advantage if their company's policies comply to the Buyer Formative Procurement Plan”.*

25                   Could you just maybe explain that?

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MR FERREIRA: One of ARMSCOR's objectives is to involve previous disadvantaged people in our procurement and what we say, what is said there is that a contractor, if he makes use of a local BEE company as part of procurement he could claim preference points in terms of evaluation. In this case all the contractors provide us with the same answer, so we could not apply that principle but they are invited, as I said please go and see if you can't team up with an affirmative company, it would help you in your evaluation. It's a standard ARMSCOR process that we followed here. If you look at some other things you can get certain preference points if you are black owned or you use people that has PDI in your proposal.

ADV MPHAGA: Thank you. I think we are done with the RFO, you may proceed to other aspects.

MR FERREIRA: Chair, we are back on page 8 of my statement.

CHAIRPERSON: Page?

ADV MPHAGA: Page 8 Chair.

MR FERREIRA: Page 8, paragraph 4.12.

CHAIRPERSON: I'm sorry Advocate Mphaga, I see he's going to start a new point now, he has finished with the RFO, is that not perhaps an appropriate moment to adjourn and he can start with this new point tomorrow morning?

ADV MPHAGA: I agree Chair that it is quite a detailed topic also, the final Value System. Thank you Chair.

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CHAIRPERSON: We'll adjourn until tomorrow morning.

**(COMMISSION ADJOURNS)**