AIRCRAFT ACCIDENT REPORT

VAL/2013/12/04/F

Accident Investigation Bureau

Report on the accident involving a Boeing 747-200 Aircraft operated by Veteran Avia Airlines Limited with nationality and registration marks EK-74798 which occurred at Nnamdi Azikiwe International Airport Abuja on 4th December, 2013.

This report was produced by the Accident Investigation Bureau (AIB), Murtala Muhammed Airport Ikeja, Lagos. The report was based upon the investigation carried out by AIB, in accordance with Annex 13 to the Convention on International Civil Aviation, Nigerian Civil Aviation Act 2006 and Civil Aviation (Investigation of Air Accidents and Incidents) Regulations 2019. In accordance with Annex 13 to the Convention on International Civil Aviation, it is not the purpose of aircraft accident/serious incident investigations to apportion blame or liability.

Readers are advised that AIB investigates for the sole purpose of enhancing aviation safety. Consequently, AIB reports are confined to matters of safety significance and should not be used for any other purpose.

The AIB believes that safety information is of great value if it is passed on for the use of others. Hence, readers are encouraged to copy or reprint reports for further distribution, acknowledging the AIB as the source.

Safety Recommendations in this report are addressed to the Regulatory Authority of the State, as well as other stakeholders, as appropriate. The Regulatory Authority is the authority that ensures implementation and enforcement.

Printed in Nigeria for the Accident Investigation Bureau (AIB)

TABLE OF CONTENTS

TABLE OF CONTENTS ..... **I**

TABLE OF FIGURES ..... **V**

GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT ..... **VI**

SYNOPSIS **2**

1.0 FACTUAL INFORMATION **4**

1.1 History of the flight 4

1.1.1 Flight Preparation prior to departure from Jeddah 4

1.1.2 Departure 5

1.1.3 Cruise 5

1.1.4 Descent 5

1.1.5 Approach and landing 5

1.2 Injuries to persons 7

1.3 Damage to aircraft 7

1.4 Other damage 7

1.5 Personnel information 8

1.5.1 Pilot in command 8

1.5.2 Co-Pilot 8

1.5.3 Flight engineer 9

1.5.4 Licensed Aircraft Maintenance Engineer 1 9

1.5.5 Licensed Aircraft Maintenance Engineer 2 10

1.6 Aircraft information 10

1.6.1 General information 10

1.6.2 Power plant 11

1.7 Meteorological information 11

1.8 Aids to navigation 12

1.9 Communications 12

1.10 Aerodrome information 13

1.11 Flight recorders 14

1.11.1 Cockpit Voice Recorder (CVR) 14

1.12 Wreckage and impact information 14

1.13 Medical and pathological information 18

1.14 Fire 19

1.15 Survival aspects 19

1.16 Test and research 19

1.17 Organizational and management information 19

1.17.1 Nigerian Civil Aviation Authority (NCAA) 19

1.17.2 Federal Airports Authority of Nigeria (FAAN) 22

1.17.3 Nigerian Airspace Management Agency (NAMA) 26

1.17.4 The airline operator 33

1.18 Additional information 38

1.18.1 Excerpts from ICAO Annex 14 – Aerodromes Volume I November 2005 No. 7 38

1.18.2 Extract from Annex 11 — Air Traffic Services 44

1.19 Useful or effective investigation technique 46

2.0 ANALYSIS 47

2.1 General 47

2.2 Flight preparation and dispatch 47

2.3 Aeronautical information management/ Notice to Airmen (NOTAMs) 47

2.3.1 Departure phase 47

2.3.2 En-route phase 48

2.3.3 Landing phase 48

2.4 Crew action 49

2.5 Regulation and Safety requirements for runway maintenance 50

3.0 CONCLUSION 51

3.1 Findings 51

3.2 Causal factor 53

3.3 Contributory factors 53

4.0 SAFETY RECOMMENDATIONS 54

4.1 Safety Recommendation 2020-014 54

4.2 Safety Recommendation 2020-015 54

4.3 Safety Recommendation 2020-016 54

4.4 Safety Recommendation 2020-021 54

APPENDICES 55

Appendix I – Jet Plan Folder (NOTAM DNAA and VAL Flight Plan) 55

Appendix II – Dispatch Sheet (Flight Dispatch Release and landing Performance chart) 59

Appendix III – NOTAM and NOTAM distribution list (A,B,C,D,E,F,G,H,I and J) 61

TABLE OF FIGURES

Figure 1: The aircraft after the incident 15
Figure 2: Aircraft collided with parked construction equipment on the grass verge 15
Figure 3: Standby generator at the wreckage site 16
Figure 4: A sketch of the wreckage site 17
Figure 5: Aerodrome layout 18

GLOSSARY OF ABBREVIATIONS USED IN THIS REPORT

ABC	Abuja VOR
ABV	Abuja
AFTN	Aeronautical Fixed Telecommunications Network
AGL	Above Ground Level
AIB	Accident Investigation Bureau
AIS	Aeronautical Information Service
AIT	AFTN Intelligent Terminal
AOC	Air Operator Certificate
ARFFS	Airport Rescue and Fire Fighting Services
ATOM	Air Traffic Operations Manager
ATC	Air Traffic Controller
ATM	Air Traffic Management
ATS	Air Traffic Service
ATIS	Automatic Terminal Information System
CFP	Computerised Flight Plan
CVR	Cockpit Voice Recorder
DNAA	Nnamdi Azikiwe International Airport, Abuja
DNKN	Aminu Kano International Airport, Kano
DNMM	Murtala Mohammed International Airport, Lagos
FAAN	Federal Airports Authority of Nigeria

FDR	Flight Data Recorder
FE	Flight Engineer
FIR	Flight Information Region
HOD	Head of Department
ICAO	International Civil Aviation Authority
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LLC	Limited Liability Company
LT	Local Time
MAKIA	Mallam Aminu Kano International Airport
MEL	Minimum Equipment List
NAMA	Nigerian Airspace Management Agency
NAIA	Nnamdi Azikiwe International Airport, Abuja
Nig.CARs	Nigerian Civil Aviation Regulations
NCAA	Nigerian Civil Aviation Authority
NOF	International NOTAM Officer
NOTAMs	Notice to Airmen
NOTOC	Notice to Captain
OCC	Operations Control Centre
OEJN	King Abdulaziz International Airport, Jeddah
OMSJ	Sharjah International Airport

PM	Pilot Monitoring
PF	Pilot Flying
RVR	Runway Visual Range
RWY	Runway
SARPs	Standard and Recommended Practices
TODA	Take Off Distance Available
TWR	Tower
UAE	United Arab Emirates
UTC	Coordinated Universal Time

Aircraft accident report number:	VAL/2013/12/04/F
Registered owner:	Agneet Sky Limited, 12 Fitzwilliam Place, Dublin 2, Ireland.
Operator(Lessor):	Veteran Avia Limited Liability Company (LLC), L4-03 Sharjah Airport Freezone, P.O Box 121095, United Arab Emirates (UAE)
Lessee:	Saudi Arabian Airlines Corporation, Kingdom of Saudi Arabia.
Aircraft type and model:	Boeing 747-281B (Freighter)
Manufacturer:	Boeing Aircraft Company U.S.A
Date of manufacture:	13th December, 1986
Nationality and registration marks:	EK-74798
Serial number:	23698
Location:	Nnamdi Azikiwe Int'l Airport(DNAA) Abuja Coordinates N09°04'24"; E007°16'18"
Date and Time:	4th December, 2013 at 21:19 UTC (*All Times in this report are UTC unless otherwise stated).*

SYNOPSIS

Accident Investigation Bureau (AIB) was notified of the occurrence at about 21:30 UTC by Abuja Tower (ATC) on 4th December, 2013. Investigators were deployed to commence investigation into the occurrence.

At 16:47 UTC, the flight Saudia 6814 (SVA6814), departed OEJN for DNAA on an Instrument Flight Rules (IFR) flight plan with an endurance of 6hrs 18mins and estimating DNAA at 21:15 UTC. The Captain was the Pilot Flying (PF) and the First Officer was the Pilot Monitoring (PM). Flight SVA6814 was cleared to FL280 by ATC.

The en-route flight was normal. At 21:14 UTC, SVA6814 reported established on Final Approach and was transferred to Tower (TWR) at 14 nm to touch down RWY 04.

At 21:15 UTC, the aircraft was in contact with TWR on 118.6 MHz and at 10 nm ILS/Localizer was established.

The Crew stated that just before landing, at about 400ft Above Ground Level (AGL), Tower said something about runway length in a garbled manner, which none of the crew could understand. The PM and the Flight Engineer (FE) in their respective statements mentioned that the Captain rechecked the approach chart before landing.

During the landing roll, TWR called the aircraft to "Hold-short Hold-short." The aircraft turned to the right to avoid the displaced threshold via exit A3, the aircraft veered off to the left of the exit and impacted some construction equipment parked on the side of the Runway.

The aircraft came to a final stop, parallel and to the right of RWY 04 on a grass verge with the fuselage and nose wheel between the construction equipment.

The six crew members evacuated the aircraft unhurt via Avionics compartment through the Main Electronic service door behind the nose wheel.

There was fire, which was extinguished by Airport Rescue and Fire Fighting Services (ARFFS).

The accident occurred at 21:19 UTC, night time.

The investigation identified the following causal and contributory factors:

Causal factor

Crew was not updated on the information available on the reduced runway length

Contributory factors

1. Lack of briefing by Saudia dispatcher during pre-flight.
2. Runway status was missing from Abuja ATIS information.
3. Ineffective communication between crew and ATC on short finals.
4. The runway markings and lighting not depicting the displaced threshold
5. The entire runway lighting was ON beyond the displaced threshold

Four safety recommendations were made.

1.0 FACTUAL INFORMATION

1.1 History of the flight

The B747-200 freighter aircraft with registration marks EK-74798 was engaged for a charter flight from King Abdulaziz International Airport Jeddah (OEJN) Saudi Arabia, to Nnamdi Azikiwe International Airport Abuja (DNAA). The following history of flight was compiled from information recorded by the Flight Recorders, Air Traffic Control (ATC) radar and voice recordings, and from interviews with the crew and eyewitnesses.

1.1.1 Flight Preparation prior to departure from Jeddah

On 3rd December 2013, the crew while on standby in the hotel were notified by the Saudia Operations Control Centre (OCC) Jeddah of their scheduled pick-up at 04:30 local time on 4th December 2013 for the flight. The pickup time was later changed to 10:35 local time the same day. At 01:59 local time on 4th December 2013, the crew received an email which stated:"*All be advised that all wake up calls on HOLD, will advise revise timings once the aircraft depart ex SHJ."*

On 4th December, 2013 EK-74798 arrived OEJN from Sharjah International Airport (OMSJ), United Arab Emirates (UAE). On ground was a Veteran Avia crew comprising of three pilots, a load master and two aircraft engineers scheduled for the chartered cargo flight to DNAA. The flight was operated by Veteran Avia on a wet lease term to Saudi Arabian Airlines.

On arrival at the OCC, the Crew collected the flight documents from an Air Atlanta dispatcher as there was no Saudi Airline representative present.

At 14:45 UTC, the crew conducted pre-flight check on the aircraft and during the cockpit preparation, the pre-departure briefing documents received from the JetPlan folder no. Plan20222 of 4th December, 2013 was checked and reviewed by all the crew members with particular attention to weather, fuel load, weights, Notice to Captain (NOTOC), Notice to Airmen (NOTAMs), Computerised Flight Plan (CFP),

departure and destination information including all relevant Jeppessen charts on hard copy and iPad versions.

Furthermore, the crew mentioned that the aircraft defects were reviewed. They also discussed the implications of the inoperative No.2 thrust reverser with good weather and adequate dry runway at a maximum landing weight. The pre-flight preparation was concluded at 15:10 UTC for the initial departure time at 15:30 UTC.

1.1.2 Departure

At 16:47 UTC, after operational delays, flight Saudia 6814 (SVA6814), departed OEJN for DNAA on an Instrument Flight Rules (IFR) flight plan with an endurance of 6hrs 18 minutes and estimating DNAA at 21:15 UTC. The captain was the Pilot Flying (PF) and the first officer was the Pilot Monitoring (PM). Flight SVA6814 was cleared to FL280 by ATC.

1.1.3 Cruise

The en-route flight was normal, with RUDDER RATIO light intermittent warning. On crossing the Kano Flight Information Region (FIR), the crew requested the destination weather information. The information was given to the crew as follows: Wind *040^0/04 kts visibility 10KM+ QNH 1013 Temp. 27°C.*

1.1.4 Descent

The Kano East Area Control descended Flight SVA6814 to FL200 and the crew was requested to contact and continue with Abuja on one two seven decimals nine (127.9MHz). The crew acknowledged.

1.1.5 Approach and landing

At 21:01 UTC, SVA6814 was in contact with Abuja Approach Radar after release by Kano. SVA6814 was then requested to Squawk[1] Alpha One Seven Five Six (A1756) and the crew acknowledged. The Approach Control reported identifying SVA6814

[1]Squawk is an identification code to activate specific mode, code or functions on a transponder

approaching Five Zero miles North of the field and to fly heading Three One Zero degrees (310^0) due traffic. SVA6814 then reported having six persons on board and estimating overhead Abuja VOR(ABC) at 21:06 UTC. SVA6814 was further descended to FL65, thereafter, 5000 ft on QNH 1013.

Before commencing descent, the crew received weather information from Automatic Terminal Information System (ATIS) on 127.05 MHz as; *"Information Yankee at 20:30, RWY 04, Wind Variable at 2 knots CAVOK Temperature 27, Dew point 19 degrees, QNH 1013, No significant change".*

SVA6814 was vectored to Final Approach RWY 04 and descended to 3500 ft.

At 21:14 UTC, SVA6814 reported established on Final Approach and was transferred to Tower (TWR) at 14 nm to touchdown RWY 04.

At 21:15 UTC, the aircraft was in contact with Tower (TWR) on 118.6MHz and at 10 nm ILS/Localizer was established.

According to the CVR transcript, the TWR cleared the aircraft to land; *"wind Zero Six Zero at Zero Three knots check gear down and locked cleared to land runway Zero Four and exercise caution on landing, landing distance available Two Thousand Five Hundred meters' sir".* The crew replied saying, *"Roger cleared to land gear is down green light and ah Saudia Six Eight One Four".*

The Crew stated that just before landing, at about 400ft Above Ground Level (AGL), Tower said something about runway length in a garbled manner, which none of the crew could make something of. The PM and the Flight Engineer (FE) in their respective statements mentioned that the Captain re-checked the approach chart before landing.

During the landing roll, TWR called the aircraft to "Hold-short Hold-short." The aircraft turned to the right to avoid the displaced threshold via exit A3, the aircraft veered off to the left of the exit and impacted some construction equipment parked on the side of the runway.

The aircraft came to a final stop, parallel and to the right of RWY 04 on a grass verge with the fuselage and nose wheel between the construction equipment.

After the impact, the crew reported engine No.2 fire warning and the fire drill was carried out but failed to extinguish the fire even after discharging the second bottle. The captain called for appropriate checklists and evacuation was initiated.

The six crew members evacuated the aircraft unhurt via Avionics compartment through the Main Electronic service door behind the nose wheel. The fire was later extinguished by Airport Rescue and Fire Fighting Services (ARFFS).

The accident occurred at 21:19 UTC, night time.

1.2 Injuries to persons

Injuries	Crew	Passengers	Total in the aircraft
Fatal	Nil	Nil	Nil
Serious	Nil	Nil	Nil
Minor	Nil	Nil	Nil
None	6	Nil	6
TOTAL	6	Nil	6

1.3 Damage to aircraft

The aircraft was substantially damaged.

1.4 Other damage

The aircraft impacted four (4) construction equipment parked by the side of the runway. The damaged equipment includes; 320 CL Excavator (Caterpillar), Pneumatic Roller (Dynapac), Asphalt Concrete Paver (Blow Knox) and 1500 litre water tanker (Man-Diesel). Some RWY edge lights were damaged.

1.5 Personnel information

1.5.1 Pilot in command

Nationality:	Pakistani
Age:	61
License type:	Airline Transport Pilot Licence (A)
License validity:	31st July, 2014
Medical validity:	31st July, 2014
Aircraft ratings:	Fokker F27, Boeing 707, Boeing 720, Boeing 737, Boeing 747, Airbus A300 Airbus A310
Total flying experience:	23000 h
On type:	13000 h
Last 90 days:	250 h
Last 28 days:	68 h
Last 24hrs:	6:25 h

The captain reported that there was no NOTAM received stating the status of runway length and that was the reason they planned to land at maximum Landing weight in Abuja (ABV).

1.5.2 Co-Pilot

Nationality:	British
Age:	47
License Type:	Airline Transport Pilot Licence (A)

License Validity:	19th April, 2014
Medical Validity:	19th April, 2014
Aircraft Ratings:	Boeing 737, Boeing 747, North America Sabreliner 265, Swearingen Merlin 3, Cessna 500 Citation, Cessna Citation V (C560), Beagle 206
Total Flying experience:	5731 h
On Type:	1296 h
Last 90 days:	127 h
Last 28 days:	35 h
Last 24 hrs:	6 25 h

1.5.3 Flight engineer

Nationality:	Pakistani
Age:	64
License Type:	Flight Engineer's License
License Validity:	31st May 2014
Type ratings:	B707/720, A300, DC-10, B747-200/300

1.5.4 Licensed Aircraft Maintenance Engineer 1

Nationality:	Indonesia
Age:	47
License Type:	Nil
Licence validity:	8th December, 2014

Ratings:	Boeing 747-200, Boeing 747-400 (A and P)

1.5.5 Licensed Aircraft Maintenance Engineer 2

Nationality:	Indonesia
Age:	46
License Type:	Nil
Licence validity:	10th February, 2014
Ratings:	Boeing 747-200 (Radio Instrument and Electrical)

1.6 Aircraft information

1.6.1 General information

Type:	B747-200
Serial number:	23698
Manufacturer:	The Boeing Company U.S.A
Year of manufacture:	1986
Airframe time:	94330:52h
Total landings/cycles:	15255
Certificate of insurance:	31th January, 2014
Airworthiness validity:	10th October, 2014
Maximum certificated take-off mass:	345965 kg
Maximum ceritficated landing mass	285762 kg

Actual take-off mass	344679 kg
Actual landing mass	284476 kg

The aircraft weight and centre of gravity were within normal limits.

1.6.2 Power plant

Engine model: General Electric Turbo fan (CF6-50E2)

Engine	**Number 1**	**Number 2**	**Number 3**	**Number 4**
Hours	52295	93118	64710	38376
Cycles	12373	19174	11382	23265
Serial number	530274	517754	530441	528206

Type of fuel: Jet A1

1.7 Meteorological information

Time:	**21:00 UTC**
Wind:	080/03Kts
Visibility:	10km
Present weather:	Nil
Cloud:	NSC
Temperature/dew point:	$26/19^0$C
QNH:	1014Hpa
Trend forecast:	NOSIG

1.8 Aids to navigation

The status of the Navigational Aids at the time of occurrence are as follows:

'ABC' VOR/DME 116.3MHz CH110X	-	Serviceable
'IAB' ILS/DME 109.3MHz CH30X	-	Serviceable
'IAC' ILS/DME 111.9MHz CH50X	-	Serviceable
Frequency Smart Strip Main and Back Up-		Serviceable
Frequency Aerodrome Data Display	-	Serviceable
Flight Plan Terminal	-	Serviceable
Airfield Lighting System Monitor	-	Serviceable
Low Level Wind Shear Alert System	-	Serviceable
Aldis Lamp	-	Serviceable
Binocular	-	Serviceable
Glide Slope Runway 04	-	Serviceable
Some Taxi Edge Lights	-	Unserviceable

1.9 Communications

The status of communication facilities at DNAA on the day of the occurrence were as follows:

VHF 118.6MHz Tower Main Freq.	-	Serviceable
VHF 121.7MHz Domestic Freq.	-	Serviceable
VHF 127.05MHz ATIS Freq.	-	Serviceable

Frequency Voice Communication System	-	Serviceable
Multi-Link Phone	-	Serviceable
Dual Sim Techno Mobile Phone	-	Serviceable

There was two way communication between ATIS and the aircraft.

The pilot stated that at some instances, the radio transmission was unreadable, blocked or garbled.

1.10 Aerodrome information

The Nnamdi Azikiwe International Airport, Abuja (DNAA) has aerodrome reference points $09^{0}00'25''N$, $007^{0}15'47''E$ and elevation 1123 ft with runway orientation 04/22. The runway has a dimension, 3610m×60m of length and width respectively with asphalt/concrete surface and a blast pad of 65m at both ends.

A number of inspections of the runway and its accompanied facilities has been carried out by relevant agencies at the airport. The post inspection reports indicated an urgent need for complete rehabilitation of the runway and its other associated facilities. There was maintenance rehabilitation work-in-progress on the failed sections of Runway 22 between link A2 and A3 as at the time of the occurrence. The length of the runway was reduced from 3610m to 2500m, a reduction of 1100 m. The runway in use was Runway 04.

During the initial crash site assessment by the investigators, the following were discovered.

Construction site was not properly illuminated and the equipment on the site were not properly marked as there was only one red light mounted on the displaced area where job was going on. The entire runway lights were ON even beyond where the construction work was going on.

1.11 Flight recorders

Recorders	Flight Data Recorder	Cockpit Voice Recorder
Manufacturer	Lockhead aircraft service company, USA	Fairchild
Model	209F	A100A
Part Number	10077A500	93-A100-80
Serial Number	2280	56211

1.11.1 Cockpit Voice Recorder (CVR)

According to the CVR transcript, the TWR cleared the aircraft to land; *"wind zero six zero at zero three knots check gear down and locked cleared to land runway zero four and exercise caution on landing, landing distance available two thousand five hundred meters' sir".* The crew acknowledged the clearance, *"Roger cleared to land gear is down green light and ah Saudia six eight one four".*

1.12 Wreckage and impact information

After the landing roll, the aircraft turned to the right to avoid the displaced threshold via exit A3, then veered off to the left of the exit and impacted some construction equipment parked on the side of the runway. There was heavy smoke and fire after the impact. Engines number 2 and 3 were severely damaged. The aircraft came to a final stop, parallel and to the right of RWY 04 on a grass verge with the fuselage and nose wheel between construction equipment.

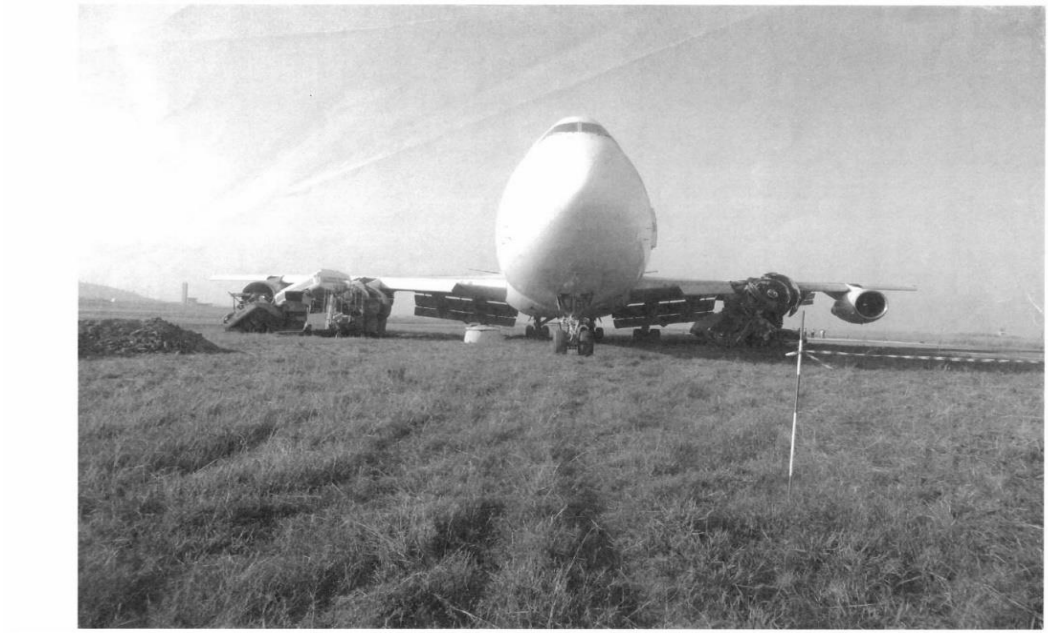


Figure 1: The aircraft after the incident

Figure 2: Aircraft collided with parked construction equipment on the grass verge

Figure 3: Standby generator at the wreckage site

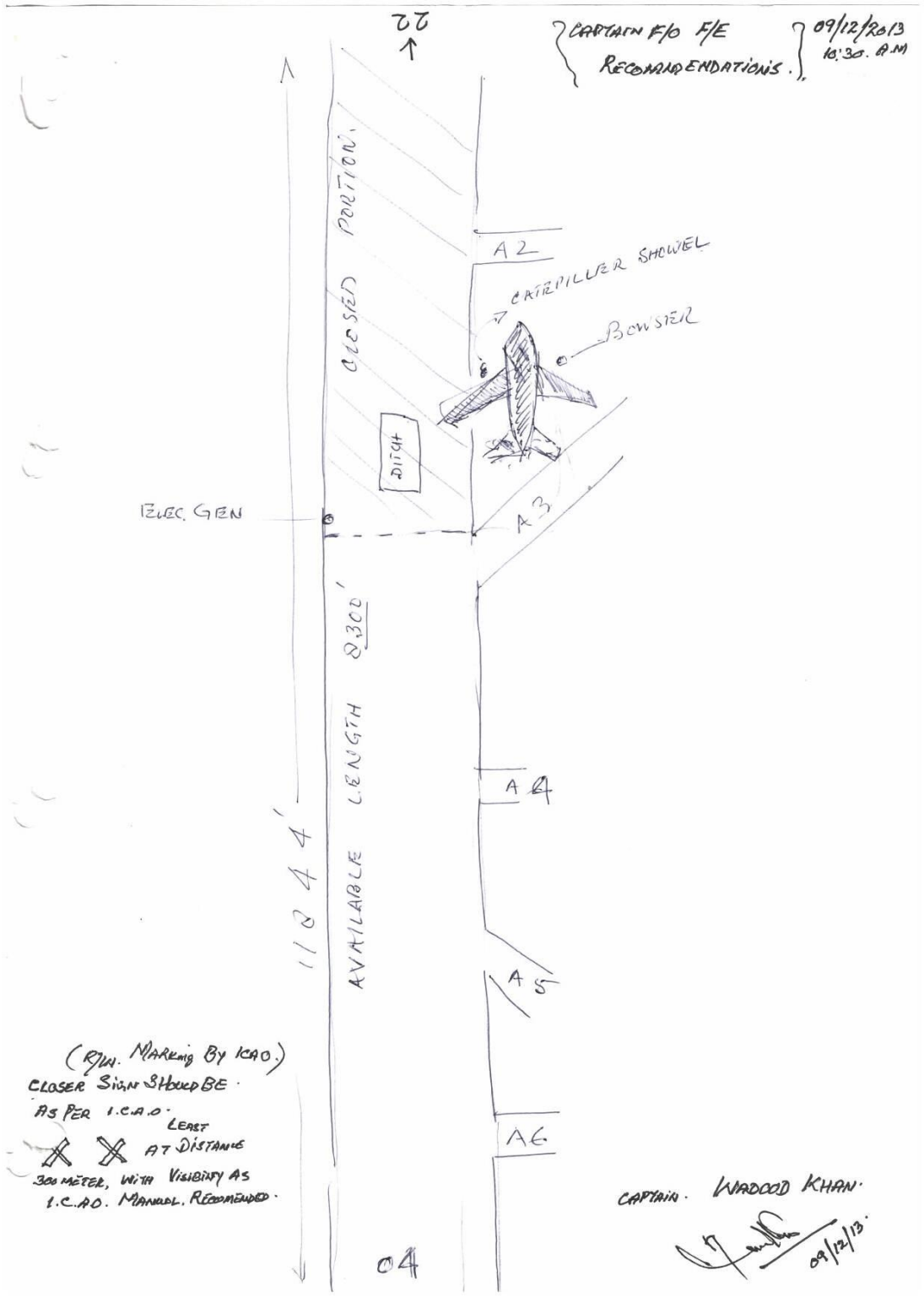


Figure 4: A sketch of the wreckage site

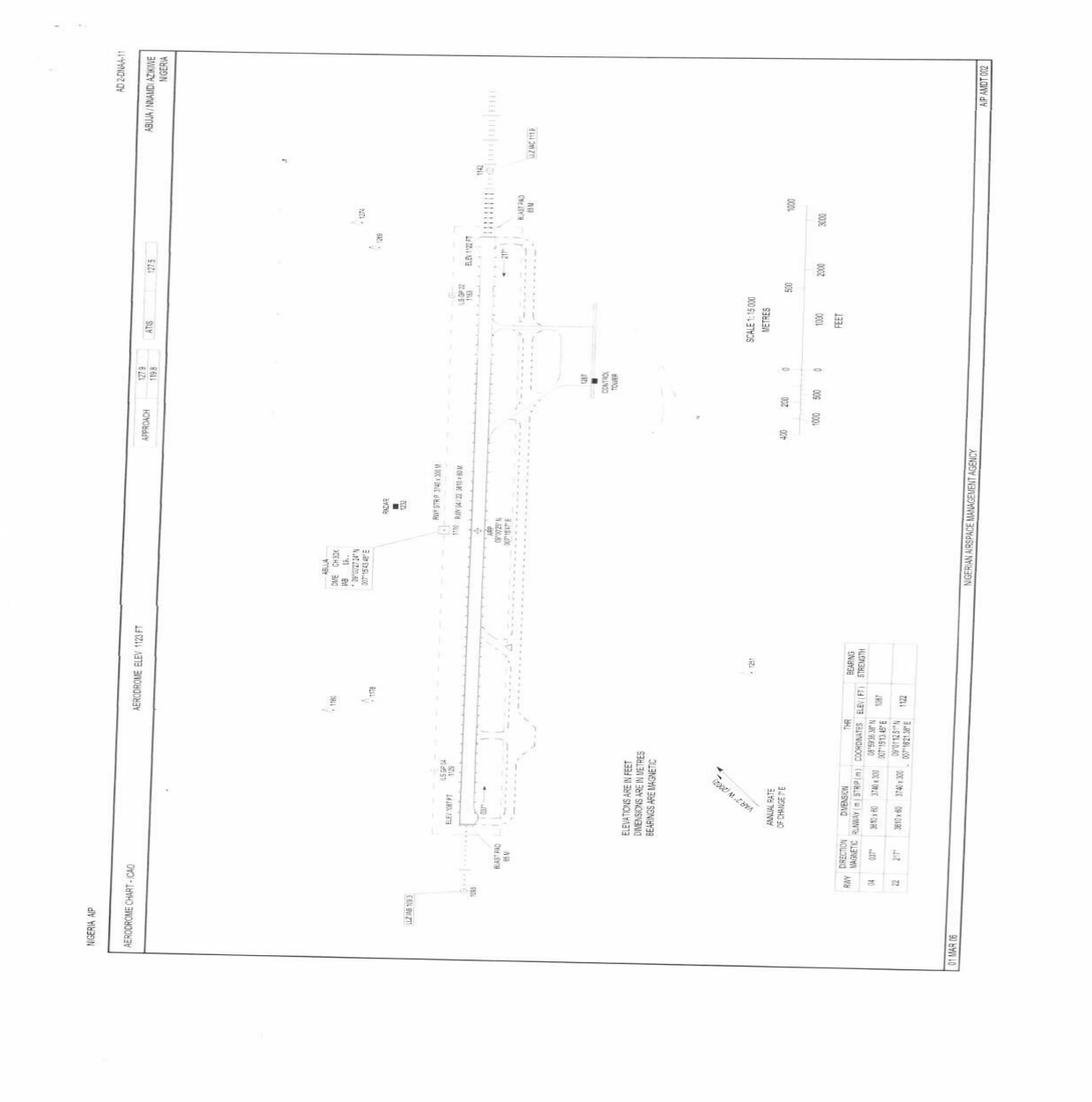


Figure 5: Aerodrome layout

1.13 Medical and pathological information

No medical or pathological test was conducted on the crew.

1.14 Fire

There was fire on number two engine after the aircraft impacted the construction equipment. Fire drill was carried out and failed to extinguish the fire even after discharging the second bottle. The fire was put off by the Airport Rescue and Fire Fighting Services (ARFFS).

1.15 Survival aspects

The occurrence was survivable as the aircraft remained intact with a liveable volume of space after the impact. The timely arrival and prompt response by the ARFFS in putting out the fire from the no. 2 engine after the impact also contributed to the survivability of the occupants.

The six crew members exited the aircraft via the Electronic and Equipment hatch behind the nose wheel without any injury.

1.16 Test and research

Not Applicable

1.17 Organizational and management information

1.17.1 Nigerian Civil Aviation Authority (NCAA)

The Nigerian Civil Aviation Authority (NCAA) is the apex regulatory body, conducting oversight over the activities of all airlines and their pilots, engineers and cabin staff, airports, airstrips and heliports, navigation aids, all service providers including the airports authority and the air traffic service provider, aviation training institutions etc.

On 29th June, 2013, the NCAA carried out airside facilities inspection of Nnamdi Azikiwe International Airport, Abuja to ensure it is safely operated and maintained in accordance with Nig.CAR's Part 12 requirements. At the end of the inspection, findings and corrective action dates were developed and the report was submitted to FAAN on the 3rd July, 2013.

1.17.1.1 Extract of relevant sections from the Nig. CARs

12.6. OBLIGATIONS OF THE AERODROME OPERATOR

12.6.1. The grant of an Aerodrome Certificate obliges the aerodrome operator to ensure the safety, regularity and efficiency of operations at the aerodrome, to allow authorised officers of the Authority access to the aerodrome to carry out safety audits, inspections and testing and to be responsible for notifying and reporting to the Authority as prescribed in these Regulations.

12.6.2. The aerodrome operator shall comply with the standards specified in the Aerodrome Standards Manual and with any conditions endorsed in the Aerodrome Certificate.

12.6.8. An aerodrome operator shall remove from the aerodrome surface any vehicle or other obstruction that is likely to be hazardous.

12.6.14. The aerodrome operator shall : Works on Aerodrome.

(a) prepare and submit to the Authority for approval a work safety plan before commencement of works to ensure that the works carried out on the Aerodrome do not endanger aircraft operations;

(b) appoint one or more trained works safety officers to ensure full compliance with the procedures and precautions in paragraph (a) above;

(c) coordinate work and ensure compliance with safety requirements and standards for routine maintenance, minor or major construction or maintenance works at its Aerodrome, as prescribed in Chapter 5 of the Aerodrome Standards Manual;

(d) provide liaison between any maintenance team or contractor, ATC and safety works officer so as to ensure compliance with safety rules in the areas of:

(1) R/T procedures to be used ;

(2) Isolation of work areas ;

(3) General working rules ;

(4) Hazards to personnel working on the Aerodrome ;

(5) Marking and Lighting on cranes or equipment that is likely to

penetrate the obstacle clearance zone ;

(6) Effect on navigational aids and other electronic landing aids ;

(7) Paved area cleanliness after work ;

(e) Carry out works on Aerodrome as prescribed in Chapter 5, section

5.1 of the Aerodrome Standards Manual.

12.6.20 states: *the aerodrome operator shall*

(a) carry out special inspections:

(1) as soon as practicable after an aircraft accident or incidence within the meaning of requirement specified in ICAO annex 13.

(2) during any period of construction or repair of the aerodrome facilities or equipment that is critical to the safety of aircraft operations.

(3) after construction, repair or maintenance work have been carried out on aerodrome facility and equipment.

(C) The aerodrome operator shall provide initial and recurrent training once in every three (3) years for any person who has duties in respect of the aerodrome inspection programme in at least the following areas:

(1) Airport familiarization, including airport signs, marking and lighting;

(2) Airport Emergency Plan

(3) Notice to Airmen (NOTAM) notification procedures

(4) Procedures for pedestrians and ground vehicles in movement areas and safety areas.

(5) Procedures for reporting changes in movement area condition

1.17.2 Federal Airports Authority of Nigeria (FAAN)

Federal Airport Authority of Nigeria (FAAN) is a Service Organization statutorily charged with the responsibility of managing Commercial Airports in Nigeria and providing services to both Passengers and Airlines.

As at the time of the occurrence the FAAN Aerodrome Operating Manuals for NAIA was undergoing certification and endorsement by the NCAA.

1.17.2.1 Extract from NAIA FAAN Aerodrome Manual

Part 11 Particulars of the Aerodrome Operating Procedures And Safety Measures Section 12 Maintenance of the Movement Area.

This section of the Airport Operations Manual addresses NCAA requirements in respect of maintenance of the Movement Area. It included arrangement for maintaining the paved and unpaved runways and taxiways, maintenance of runway and taxiway strips and maintenance of drainage.

These procedures are required for the purpose of maintaining the safety and ensure safe aircraft operations.

11.12.3 RESPONSIBILITIES

• The Head of Department (HOD) Lands, Water and Survey is responsible for grass cutting in the movement areas.

• Ensure that Labourers involved in grass management have valid access documents before accessing the movement area.

• That the equipment can not constitute hazards to aircraft movement or obstruction in the movement areas.

• ATC are notified of the maintenance work near the runway or taxiway

***Head of Safety:** Is responsible for ensuring that any maintenance work being carried in the movement area is done in accordance with aerodrome work safety plan.*

Ensure that the Airfield Service officers conduct inspections and carry out after maintenance routine procedures to ensure that all equipment or items in the movement area are removed and debris are cleared (See Part 4 section 12 Aerodrome Works Safety).

11.12.4 Arrangement for maintenance of paved areas:

MAINTENANCE OF THE MOVEMENT AREA

MAINTENANCE CRITERION

The movement area shall be maintained in the following conditions:

• The surface of pavement (Runways, taxiways, and Apron, etc) shall be kept clear of any lose stones or other objects.

• Standing water, wind dust, sand, oil, rubber deposits and other contaminants shall be removed as rapidly and completely as possible to minimise accumulation.

• The safety areas and Runway/Taxiway strips to be cleared and graded and shall have no potential hazardous ruts, lumps, depression and other variations and shall be free of objects which may endanger aeroplanes.

• Safety areas shall be drained to prevent water accumulation.

• The Runway/Taxiway strips and safety area shall be capable under dry conditions of supporting ARFF vehicles, equipment and occasional passage of aircraft without causing damage to the aircraft.

• No object shall be located in the safety area except for objects that need to be frangible [2] of low mass and mounted as low as possible.

1.17.2.2 FAAN daily inspection report of NAIA

The Head of Airport Operations FAAN, reported that consequent upon the daily inspection reports from the airfield unit of the operations department of the Nnamdi Azikiwe International Airport (NAIA) Abuja which called for the urgent repairs of the failed portion of the runway, there was the need to carry out a quick repair of the said portion of the runway.

The Director of Projects in FAAN was notified and the Federal Ministry of Aviation was informed of the urgency of the proposed work. The situation prompted a quick approval from the Ministry of Aviation which was communicated to the Head of Department Civil and Building who liaised with the Head of Operations and the Airspace Manager to issue a NOTAM for the commencement of work on the failed portion of the runway.

A contractor (Messrs MCZOLL Resources Limited was then commissioned to work on the failed portion of the runway).

The proposed work required the displacemement of 1,100 meters from the 22 end of the Runway, thereby leaving 2,500 meters as available distance for flight operations.

However, NOTAM to this effect was issued on 28th November, 2013 indicating the displace 1,100 meters from Runway 22 and take-off distance available of 2500

[2]Frangible–defined as an object of low mass, designed to break, distort or yield on impact, so as to present the minimum hazard to aircraft. A technical term commonly used in aviation, military, etc.

meters to cover the hours of 0900 UTC to 0900 UTC from 30th November to 10th December, 2013.

The contractor was mobilised to site to commence work on the 2nd December, 2013. At this point, instruction was passed for the application of safety measures and precaution for the entire duration of the proposed work.

Excavation of the affected part area of the runway commenced on the 2nd December, 2013 and demarcation lights in respect of the displaced threshold was introduced.

All necessary safety precautions were activated as workers were guided in and out of the closed area of the runway and at every point in time, only equipments required for each activity were allowed on site and those not readily needed were kept at the adjacent grass verge.

Records from the airport inspection history indicated that from 28th November, 2013 the date NOTAMs was issued, aircraft operations/activities had been carrying out without any reported incident/accident.

Regular inspection by the airfield operations unit was activated to check and monitor the progress of work and adherence to safety standards.

Available records from the DNAA inspection watch log revealed on the day of the occurrence, at 20:41 h, additional Stop Bar Lights were installed by MCZOLL personnel in order to enhance sighting the end of the Take Off Distance Available (TODA). The ATC was fully notified.

1.17.2.3 MCZOLL Resources Limited

The Project Director reported that MCZOLL Resources Ltd was the Sub-Contractor handling the maintenance of the runway. That the area (between links A2 and A3 of the runway) under maintenance had earlier been repaired by adopting surface (replacement of wearing course) repairs as directed, specified and supervised by

FAAN Engineers. Furthermore, the Director mentioned that the maintenance at that time was carried at night as the real cause of the failure was not identified.

When the same area of the Runway failed for the second time, the Company informed FAAN Authority that two weeks will be needed to carry out proper repair works as it was discovered a structural failure from the foundation that will require deep excavation of 1.5m or more with gradual build-up of the pavement.

A generator was provided to power the warning red lights supported by battery back-up red warning lights at the displaced threshold at the commencement of the repair works to the end of the repair works. And also temporary markings were installed at the displaced threshold at the commencement of the repair works on the 2nd of December 2013 to the end. It was reported of working day and night to quickly complete the repair works. The workers were all the time guided and brought in and out of the runway by FAAN Operations Officers.

At about 09:30 LT when the workers were on a break, the aircraft EK-74798 crashed into the construction equipment used for the runway repair works which were parked on the grass verge at link A2.

1.17.3 Nigerian Airspace Management Agency (NAMA)

The organisation is responsible for the provision of air navigation services throughout the Nigerian Flight Information Region (FIR). The agency provides air traffic control, air navigation, charting and consulting services. NAMA also strives to develop the Nigerian airspace infrastructure to a level consistent with the requirements of the ICAO Standards and Recommended Practices (SARPs).

On 22nd July, 2013, the Air Traffic Operations Manager (ATOM) in company of the Acting Regional Manager (FAAN) and the FAAN Head of Operations took an inspection tour to some particular failed spots of the runway.

On 23rd July, 2013, the Air Traffic Operations Manager (ATOM) at DNAA wrote a memo referenced NAMA/ABJ/ATC/OPS/VOL2/2 titled the Current State of the

Runway 22/04 to the Airspace Manager.The memo laid particular emphasis on Runway 22 which happens to be the only instrument approach runway serving the airport. Cracks and depression on the center line of runway 22, close to link three (3) were discovered by the duty controllers during routine runway inspection. The attention of the FAAN Head of Operations was then called. The Head of Operations promised to take immediate action.

As a result, the Air Traffic Controllers decided to use Runway 04 for the departures and landings of aircraft before repair work is effected.

On the 12th August, 2013, the Air Traffic Operations Manager (ATOM) at DNAA through an internal memo with reference number NAMA/ATC/ABJ/NOTAM/VOL.1, advised the Head of Department Aeronautical Information Service (AIS) DNAA of Runway 22 Closure as a result of the rehabilitation work between Links A2 and A3 of runway 22, the landing and take off distance available has been reduced to 2500 m and runway in-use was runway 04 until 0000 hours on 16th August 2013. Pilots should adhere strictly to ATC instructions.

On 25th September, 2013, the Air Traffic Operations Manager (ATOM) at DNAA, initiated another memo referenced NAMA/ABJ/ATC/OPS/VOL.2/28 titled Critical State of Abuja Runway to the Regional Manager FAAN DNAA. The memo indicated that the runway is more than twenty years old and is now prone to cracks at different points along its length. That the repair works that was carried out recently between links two and three of the same runway has failed again after a week.

The report further stated that as at the time of filing, about four different spots on the runway including the spot that was earlier worked upon, as well as a big pothole at taxiway link two are all in bad shape. It was pointed out that the failed spots produces pebbles as aircraft constantly lands and take-offs on the runway which could be very dangerous to flight operations and therefore, as a matter of urgency, something needs to be done for a lasting solution.

1.17.3.1 Air Traffic Control (ATC) Service

Air Traffic Control (ATC) Service, presently referred to as Air Traffic Management (ATM) is one of the most important services provided by Nigerian Airspace Management Agency (NAMA).

Air Traffic Control (ATC) Service is a service provided for the purpose of preventing collisions between aircraft; on the manoeuvring area, between aircraft and obstructions; and to expedite and maintain an orderly flow of air traffic. ATC service is sub-divided into area control service, approach control service and aerodrome control service.

1.17.3.2 Aeronautical Information Services (AIS)

AIS is a unit responsible for the collection, collation and delivery of accurate, current and timely aeronautical information necessary for the safety, efficiency and regularity of international air navigation with the most minimum delay.

1.17.3.2.1 NOTAM

Notice to Airmen (NOTAMs) are notices distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

NOTAM requests are sent to the Aeronautical Information Service (AIS) who review the request and, if there are no points requiring clarification, will code and transmit the information on the Aeronautical Fixed Telecommunications Network (AFTN) as soon as possible. Once transmitted, the information is instantaneously available to contracting states and those subscribing to the network which includes companies supplying aeronautical briefing information to operators.

1.17.3.2.2 Promulgation of NOTAM

A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes or temporary changes of long duration are made at short notice, except for extensive text and/or graphics. In line with ANNEX 15 chapter 5. and AIS Manual DOC 8126 chapter 6.1.2.

The procedures for NOTAM promulgation by NAMA are:

Receipt of NOTAM advice from related service concerned ; or

NOTAM promulgated from Kano Center in respect of International Airport under its jurisdiction.

1.17.3.2.3 NOTAM distribution

NOTAM promulgated are usually distributed in two ways as follows:

International Distribution (NOF NOTAM)

National Distribution (National NOTAM)

This is in accordance with AIS manual document 8126 Chapter 6.2.5. The distribution is done in accordance with the list containing the addresses of all contracting states for the NOTAM exchange.

There are three (3) promulgation centres in the country as follows:

International NOTAM Office (NOF) – An office designated by a State for the exchange of NOTAM Internationally. It is located in Lagos DNMM;

AIS Northern Centre – National NOTAM for Northern Centre of KANO FIR;

AIS Southern Centre – National NOTAM for Southern Centre of KANO FIR.

The HOD AIS DNKN (MAKIA) reported that, the Kano AIS recieved a NOTAM advice from AIS Abuja on the 28th November, 2013 with reference number A15023/1311281322. The NOTAM advice was in respect of rehabilitation work on

Runway 22 which was scheduled to commence from 30/11/13 to 4/12/13. A NOTAM with serial number 1156/13 NOTAMN was promulgated by the Duty Officer and submitted to the Aeronautical Communication Centre for transmission and dissemination. The NOTAM was submitted to the Aeronautical Communication Centre on the same day 28/11/13 at 15:51 UTC.

Evidence made available by the AeroComms Centre showed that the NOTAM was transmitted and disseminated at 16:11 UTC on the same 28/11/13.

The HOD AIS DNMM (Lagos) also reported receiving the NOTAM promulgated by KANO and used it for the promulgation of international NOTAM A0215/13 NOTAMN accordingly. The promulgated recieved NOTAM is marked as Appendix A, and the International NOTAM promulgated for NOTAM referenced A0215/13 is marked Appendix B. While the promulated NOTAM A0218/13 as a result of NOTAM advice recieved from DNAA (Abuja) for the extension of the rehabilitation work is marked as Appendix C and the International NOTAM A0218/13 NOTAMR A0215/13 is marked as Appendix D.

The HOD further stated that both NOTAM were sent to Communication Department for onward Aeronautical Fixed Telecommunication Network (AFTN) transmission. The A0215/13 NOTAM was sent to Comms and signed by Comms officer at 281755 (28th November, 2013 at 17:55 UTC) is marked as Appendix E, while NOTAM A0218/13 was also sent to Comms and signed for by Comms officer at 041237 (4th December, 2013 at 12:37 UTC) is marked as Appendix F.

On 03/12/13, the AIS Centre KANO received a NOTAM advice from AIS Abuja requesting NOTAM action for the extension of rehabilitation work on runway 22 which NOTAM 1156/13 had earlier indicated. The AIS Centre KANO promulgated a NOTAM with serial number 1161/13 NOTAMR. The NOTAM 1161/13 replaced the previous NOTAM 1156/13. The NOTAM 1161/13 was promulgated on the same day it was received and submitted to Aeronautical Communications Centre for transmission at 17:00 UTC. Evidence from Aerocomms Centre showed that the

NOTAM was transmitted at 18:50 UTC on the same day 03/12/13. It is to be noted that the extension for the continuation of the rehabilitation work was from 04/12/13 to 10/12/13.

According to the HOD AIS DNMM both NOTAM were duly distributed to all airport officials and airline operators. See distribution list marked Appendix G – Airport officials distribution list for NOTAM A0215/13, Appendix H – Airlines distribution list for NOTAM A0215/13, Appendix I – Airport officials distribution list for NOTAM A0218/13, and Appendix J – Airlines distribution list for NOTAM A0218/13.

It is to be noted that KANO Centre had issued the same NOTAM before the International NOTAM Office and the NOTAM must have been distributed both in Kano and Abuja accordingly.

1.17.3.3 Aeronautical Communication

The Aeronautical Communication department has the statutory responsibility to provide Telecommunication Service between specified fixed points primarily for the safety of air navigation, and for the regular, efficient and economical operation of air services.

The Head of Department Aero Comms AFTN/AMHS DNKN (MAKIA) reported that on 28/11/13 at 281551, a NOTAM message referenced 1156/13 NOTAMN was brought to Communications Centre in Kano by AIS for transmission and was accepted in accordance with set down standards and recommended practice for transmission to all addressees indicated in the message.

The message was transmitted at 281611 UTC to all the addressees indicated in the message.

While the Head of Department of Communication DNMM (Lagos) airport reported that the primary vocation of the Lagos AFTN Comms Centre is the acceptance, transmission and delivery of aeronautical messages coming within the categories specified in Annex 10 Volume II Sections 4.4.1.1.

The two NOTAM were respectively filed at the dates mentioned and accepted for transmission at Lagos AFTN Comms Center. The NOTAM were then transmitted to all the addresses indicated therein with the priority classification and without discrimination in line with the procedure laid down in Annex 10 Volume II Sections 3.3.1.2.

The NOTAM message referenced A0215/13 NOTAMN of 28th November 2013 was transmitted to all the addressees at 18:17 UTC, 18:19 UTC, 18:21 UTC and 18:22 UTC respectively.

While the NOTAM message referenced A0218/13 NOTAMR A0215/13 of 4th December 2013 was transmitted at 15:22 UTC, 15:59 UTC, 16:07 UTC and 16:10 UTC respectively.

The multiple addressees on the two messages was the reason why each message was transmitted at four different time[s],in view of the fact that the addressees in the message were selected for transmission in accordance with the predetermined responsibility or ICAO routine arrangement with adjacent stations in line with ICAO Manual on Network Planning document 8259.

The two NOTAM messages were transmitted on AFTN Intelligent Terminal (AIT) which software permits transmission and reception of all Aeronautical messages such as Flight Plans, Meteorological messages, Admininstrative and other Aeronautical information messages.

The transmitted copies of the two NOTAM messages would have been printed out as evidence, but the COMSOFT Software in use as at that time on the AFTN Intelligent Terminal have been decommissioned, while the replacement may not be able to access messages of November and December 2013 in the old database management menu.

The page copies of the two NOTAM messages were destroyed in the month of June, 2014 among other AFTN messages that have spent more than five months on the rack without any query or reference to them for the following reasons:

The procedures in Annex 10 Volume II Section 4.4.1.6.1 provides for a period of at least 30 days for the long term retention of AFTN traffic record and one hour for short term retention of AFTN traffic record;

The page copies of all messages transmitted can only be kept for at most five months as the available space permits and the volume of page copies involved;

That it is even a local arrangement to keep messages for such a long period because of the peculiar nature of our environment.

The HOD COMMS further mentioned that the rapidly increasing volume of aeronautical message[s] on AFTN at the Lagos AFTN Comms Centre has become a challenge for there is the need to establish a database where all messages transmitted/recieved are expected to be stored for ease of reference whenever the need arises.

1.17.4 The airline operator

Veteran Avia Limited Liability Company (LLC) is the operator of the aircraft, registered with the General Department of Civil Aviation, Republic of Armenia. The company has an Air Operator Certificate (AOC) No.AM-AOC-058 valid till 9th July, 2014, Air Carrier Certificate valid till 9th July, 2014, with permission to operate combined air transportations in Africa. The company also has Certificate of Civil Aircraft No. 2199 and Certificate of Registration Civil Aircraft No. 3139 on B74798 Cargo Categories. The operator has two Boeing 747-200 aircraft in the fleet with registration numbers EK-74798 and EK-74799 which have been on wet lease agreement (No.4600000170) to Saudi Arabian Airlines till 31st January, 2014 and 30th June, 2014, respectively.

On 3rd December, 2013, the crew were notified by the Company Operations department of the flight, detailing the crew to operate from OEJD to DNAA at 04:30 Local Time (LT) on the 4th of December, 2013. On the same day, another revised wake up time of 10:35 LT was recieved by the crew.

On 4th December, 2013, the crew were conveyed to the aircraft after several revised notifications on the wake up time. On arrival at their company desk, the flight dispatch folder was given to the crew by an Air Atlanta dispatcher as there was no Company reperesentative present at the time.

The Dispatch flight folder consists of the following:

Veteran Avia Flight Plan number CFP SVA6814 OEJN-DNAA ;

Jeppesen Weather PLAN 20305 (Terminal Area Forecast OEJN-DNAA-DNMM 04DEC2013);

Jeppesen Weather PLAN 20222 (AD NOTAMS JED-ABV-LOS/04DEC (DEP DST ALT);

Fixed Time Prognostic Chart no.:PGRE05 EGRR 040000;

General Declaration ICAO Annex 9 Appendix 1 form;

Cargo Load sheet;

Refueling Form number (M-0006);

Special Load Notification to Captain;

Flight Dispatch Release;

10) Airfield chart, Approach plate and Aircraft landing Performance charts.

The Flight Plan CFP SVA6814 showed it was prepared/calculated at 1140Z on 4th December, 2013 based on 0406UK Progs. The initial scheduled departure time was at 15:30UTC/18:30LT. The actual time the aircraft taxied out was at 15:50 UTC and got airborne at 16:47 UTC on the same day.

The TAF for the destination airport (DNAA) obtained from JetPlan.com on Jeppesen Weather Plan 20305 from the Company dispatch folder is as follows:

TAF DNAA 040340Z 0406/0512 33002KT CAVOK TEMPO 0408/0412 23005KT 9999 FEW011 TEMPO 0413/0416 BKN013 FEW021CB BECMG 0416/0418 13000KT FEW010=

Also amongst the NOTAMS obtained from the Company dispatch folder was a list of four (4) items for the destination airport (DNAA) stated as follows:

1. DNAA APT 2013091D662V01 A0178/13

E) Terminal/Approach Control Surveillance Services Freq. 127.9MHZ -Operational;

2. DNAA APT 2013091C029V01 A0172/13

E) Taxiway Centre Line Lights – Unserviceable;

3. DNAA APT 2013091C023V01 A0174/13

E) Stop Bar Lights Runway 04/22 – Unserviceable;

4. DNAA APT 2013091 C022V01 A0173/13

E) Taxiway Edge Lights – Unserviceable

The Load Sheet of flight SVA6814 indicated the following items:

Maximum Take Off Gross Weight (Structural Limit) of 377842 KG

Maximum Take Off Limit 345962 KG

Maximum Take Off weight 342215 KG

Maximum Landing weight 285762 KG

Landing Weight 282015 KG

The landing performance from all available documents showed that flight SVA6814 was landing at DNAA Runway 04 with a landing weight of 282015 KG with a final approach speed of 152 Knots and Flaps configuration of 30. According to the flight plan, it was assumed the full length of the runway was to be used as the available stopping distance for the aircraft after the landing at an auto break setting of 2 and at Trim setting 5½.

Extract from Veteran Avia Operations Manual Part A

1.8.6 SUPERVISOR OF FLIGHT DISPATCH/OPERATIONS CONTROL CENTER
The ground operations manager or his designated OCC/Flight Dispatch supervisor is responsible to provide.
Professional computer flight planning and briefing service to ensure safe, legal and effiecient dispatch of VETERAN AVIA flights worldwide.

Develop systems and procedures to ensure the highest standard of service are maintained and to meet the future need of the VETERAN AVIA Operations Department.

The Supervisor of OCC/Flight Dispatch is responsible for the following:

Supervise the activities of the Flight Dispatch section concerning the production and distribution of accurate and timely flight planning and briefing information for the company flight.

Ensure the correct rostering of Dispatch personnel and crew schedulers to meet the varying requirements of each shift.

Ensure the training courses and plans are place and that staff attain all qualifications required. This is to include continuation training to meet new company requirements satisfy GDCA RA Regulations.

Ensure Flight Dispatch procedures and training manuals are in place and are maitained to cover standard, non-standard operations and that they comply with company policy ESA/GDCA RA Regulations and approval.

Ensure that staff continually monitors fuel indices to tanker fuel on sectors to reduce company operating cost.

Ensure that staff and agents at out stations are trained in the requirements for compiling and distributing flight-planning documentation.

Ensure procedures are in place to accurately monitor, document and distribute to crews NOTAM, weather and other information that could affect VETERAN AVIA operations.

Ensure correct filing of all flight planning documentation and that records are kept in accordance with Company policy.

Ensure that Civil Aviation Authorities receive all required advance flight notification to Maintain contact with other VETERAN AVIA departments and outside agencies to minimize delays and disruptions of schedules.

2.4.2.2.3.5 COMMUNICATION WITH AIRCRAFT

In flight, the final disposition of the aeroplane rests with the commander, who shall coordinate with the OCC and base his decisions on all aspects of safety of the aeroplane, its supernumeraries and crew. In the event that a flight deviates from the flight-planned route, it is the sole responsibilityof the Commander to select the diversion or alternate airport. The reasons for diversion, the Commander may elect to confer with the DM-OCC; in this case, the DM-OCC may elect to discuss the options with other OCC staff members. The Commander's decision is final. After alternate selection, it is prohibited for any OCC staff member to attempt to influence the commander's selection.

It is recommended that radio calls relating to aircraft diversions, should be communicated through HF in-flight or a company provided Blackberry on the ground. When possible the following forms of communication are currently available.
VHF radio
HF radio
Blackberry
3.6.2 Flight planning procedures
An IFR flight plan will be filed for each operation. Each Flight crewmember shall ensure:
Departure, enroute and destination weather are at or above airport published minimums and the flight can be accomplished safely and comfortably.

All applicable NOTAMs have been checked.

All aircraft performance limitations will be met.

The flight can be operated safely in compliance with all required regulations, VETERAN AVIA standards, airport restrications and limitations, and aircraft limitations.

1.18 Additional information

1.18.1 Excerpts from ICAO Annex 14 – Aerodromes Volume I November 2005 No. 7

Chapter 3.4 Runway strips
General
A runway and any associated stopways shall be included in a strip.
Objects on runway strips
Note.– See 9.9 for information regarding siting of equipment and installations on runway strips.

3.4.6 Recommendation. – *An object situated on a runway strip which may endanger aeroplanes should be regarded as an obstacle and should, as far as practicable, be removed.*

3.4.7 No fixed object, other than visual aids required for air navigation purposes and satisfying the relevant frangibility requirement in Chapter 5, shall be permitted on a runway strip:

a) within 77.5 m of the runway centreline of a precision approach runway category I, II or III where the code number is 4 and the code letter is F; or

b) within 60 m of the runway centreline of a precision approach runway category I, II or III where the code number is 3 or 4; or

c) within 45 m of the runway centreline of a precision approach runway category I where the code number is 1 or 2.

No mobile object shall be permitted on this part of the runway strip during the use of the runway for landing or take-off.

CHAPTER 6. VISUAL AIDS FOR DENOTING OBSTACLES

6.1 Objects to be marked and/or lighted

Note. – The marking and/or lighting of obstacles is intended to reduce hazards to aircraft by indicating the presence of the obstacles. It does not necessarily reduce operating limitations which may be imposed by an obstacle.

6.1.6 Vehicles and other mobile objects, excluding aircraft, on the movement area of an aerodrome are obtacles and shall be marked and, if the vehicles and aerodrome are used at night or in conditions of low visibility, lighted, except that aircraft servicing equipment and vehicles used only on aprons may be exempt.

6.1.9 Recommendation. – Obstacles in accordance with 4.3.2 should be marked and lighted, except that the marking may be omitted when the obstacle is lighted by high-intensity obstacle lights by day.

6.2 Marking of objects

General

6.2.2 All mobile objects to be marked shall be coloured or display flags.

6.3 Lighting of objects

Use of obstacle lights

6.3.1 The presence of objects which must be lighted, as specified in 6.1, shall be indicated by low-, medium- or high-intensity obstacle lights, or a combination of such lights.

6.3.2 Recommendation. – Low-intensity obstacle lights, Type A or B, should be used where the object is a less extensive one and its height above the surrounding ground is less than 45 m.

6.3.4 Low-intensity obstacle lights, Type C, shall be displayed on vehicles and other mobile objects excluding aircraft.

6.3.14 In the case of an extensive object or of a group of closely spaced objects, top lights shall be displayed at least on the points or edges of the objects highest in relation to the obstacle limitation surface, so as to indicate the general definition and the extent of the objects. If two or more edges are of the same height, the edge nearest to the landing area shall be marked. Where low-intensity lights are used, they shall be spaced at longitudinal intervals not exceeding 45 m. Where medium-intensity lights are used, they shall be spaced at longitudinal intervals not exceeding 900 m.

CHAPTER 7. VISUAL AIDS FOR DENOTING RESTRICTED USE AREAS

7.1 Closed runways and taxiways, or parts thereof

Application

7.1.1 A closed marking shall be displayed on a runway or taxiway, or portion thereof, which is permanently closed to the use of all aircraft.

7.1.2 Recommendation. – A closed marking should be displayed on a temporarily closed runway or taxiway or portion thereof, except that such marking may be omitted when the closing is of short duration and adequate warning by air traffic services is provided.

Location

7.1.3 On a runway a closed marking shall be placed at each end of the runway, or portion thereof, declared closed, and additional markings shall be so placed that the maximum interval between markings does not exceed 300 m. On a taxiway a closed marking shall be placed at least at each end of the taxiway or portion thereof closed.

Characteristics

7.1.4 The closed marking shall be of the form and proportions as detailed in Figure 7-1, Illustration a), when displayed on a runway, and shall be of the form and proportions as detailed in Figure 7-1, Illustration b), when displayed on a taxiway. The marking shall be white when displayed on a runway and shall be yellow when displayed on a taxiway.

Note. – When an area is temporarily closed, frangible barriers or markings utilizing materials other than paint or other suitable means may be used to identify the closed area.

7.1.6 Lighting on a closed runway or taxiway or portion thereof shall not be operated, except as required for maintenance purposes.

7.1.7 In addition to closed markings, when the runway or taxiway

Or portion thereof closed is intercepted by a usable runway or taxiway which is used at night, unserviceability lights shall be placed across the entrance to the closed area at intervals not exceeding 3 m (see 7.4.4).

7.3 Pre-threshold area

Application

7.3.1 Recommendation. – Whenthesurface before a threshold is paved and exceeds 60 m in length and is not suitable for normal use by aircraft, the entire length before the threshold should be marked with a chevron marking.

Location

7.3.2 Recommendation. – A chevron marking should point in the direction of the runway and be placed as shown in Figure 7-2.

Characteristics

7.3.3 Recommendation. - A chevron marking should be of conspicuous colour and contrast with the colour used for the runway markings; it should preferably be yellow. It should have an overall width of at least 0.9 m.

7.4 Unserviceable areas

Application

7.4.1 Unserviceability markers shall be displayed wherever any portion of a taxiway, apron or holding bay is unfit for the movement of aircraft but it is still possible for aircraft to by pass the area safely. On a movement area used at night, unserviceability lights shall be used.

Note. – Unserviceability markers and lights are used for such purposes as warning pilots of a hole in a taxiway or apron pavement or outlining a portion of pavement, such as on an apron, that is under repair. They are not suitable for use when a portion of a runway becomes unserviceable, nor on a taxiway when a major portionof the width becomes unserviceable. In such instances, the runway or taxiway is normally closed.

Location

7.4.2 Unserviceability markers and lights shall be placed at intervals sufficiently close so as to delineate the unserviceable area.

Characteristics of unserviceability markers

7.4.3 Unserviceability markers shall consist of conspicuous upstanding devices such as flags, cones or marker boards.

Characteristics of unserviceability lights

7.4.4 An unserviceability light shall consist of a red fixed light. The light shall have an intensity sufficient to ensure conspicuity considering the intensity of the adjacent lights and the general level of illumination against which it would normally be viewed. In no case shall the intensity be less than 10 cd of red light.

Characteristics of unserviceability cones

7.4.5 Recommendation. – An unserviceability cone should be at least 0.5 m in height and red, orange or yellow or any one of these colours in combination with white.

….

CHAPTER 10. AERODROME MAINTENANCE

10.1 GENERAL

10.1.1 Recommendation.- A maintenance programme, including preventive maintenance where appropriate, should be established at an aerodrome to maintain facilities in a condition which does not impair the safety, regularity or efficiency of air navigation.

Note 1.- Preventive maintenance is programmed maintenance work done in order to prevent a failure or degradation of facilities.

Note 2.- "Facilities" are intended to include such items as pavements, visual aids, fencing, drainage systems and buildings.

10.1.2 Recommendation. – The design and application of the maintenance programme should observe Human Factors principles.

10.2 Pavements

10.2.1 The surface of pavements (runways, taxiways, aprons and adjacent areas) shall be kept clear of any loose stones or other objects that might cause damage to aircraft structures or engines, or impair the operation of aircraft systems.

10.2.2 The surface of a runway shall be maintained in a condition such as to prevent formation of harmful irregularities.

10.2.3 Measurements of the friction characteristics of a runway surface shall be made periodically with a continuous friction measuring device using self-wetting features.

10.2.4 Corrective maintenance action shall be taken when the friction characteristics for either the entire runway or a portion thereof are below a minimum friction level specified by the State.

Note. – a portion of runway in the order of 100 m long may be considered significant for maintenance or reporting action.

10.2.5 Recommendation. – Corrective maintenance action should be considered when the fricition characteristics for either the entire runway or a portion thereof are below a maintenance planning level specified by the State.

1.18.2 Extract from Annex 11 — Air Traffic Services

4.3.4 Voice-automatic terminal information service (Voice-ATIS) broadcasts.

4.3.4.1 Voice-automatic terminal information service (Voice-ATIS) broadcasts shall be provided at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air-ground communication channels. When

provided, they shall comprise:

a) one broadcast serving arriving aircraft; or

b) one broadcast serving departing aircraft; or

c) one broadcast serving both arriving and departing aircraft; or

d) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

4.3.8 ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

a) name of aerodrome;

b) arrival indicator;

c) contract type, if communication is via D-ATIS;

d) designator;

e) time of observation, if appropriate;

f) type of approach(es) to be expected;

g) main landing runway(s); status of arresting system constituting a potential hazard, if any;

h) significant runway surface conditions and, if appropriate, braking action;

i) holding delay, if appropriate;

j) transition level, if applicable;

k) other essential operational information;

l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

**m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;*

**n) present weather;*

**o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus;*

if the sky is obscured, vertical visibility when available;

p) air temperature;

q) dew point temperature;

r) altimeter setting(s);

s) any available information on significant meteorological phenomena in the approach area including wind shear, and information on recent weather of operational significance;

t) trend forecast, when available; and

u) specific ATIS instructions.

1.19 Useful or effective investigation technique

Not applicable

2.0 ANALYSIS

2.1 General

Veteran Avia Limited Liability Company is the operator of the aircraft, registered with the General Department of Civil Aviation, Republic of Armenia. The company had valid Air Operator Certificate (AOC) and also had valid Air Carrier Certificate, with permission to operate combined air transportations in Africa.

The flight crew were certified and qualified to conduct the flight.

2.2 Flight preparation and dispatch

During the preparatory phase of the flight, the crew arrived at the Operation Control Centre (OCC) Jeddah but the Veteran Avia Dispatcher on duty was not available to brief the crew. The crew received the flight folder from a staff of Air Atlanta who was not connected to the operations of Veteran Avia and as such does not have and could not provide the necessary information for the safe conduct of the flight. In accordance with the responsbilities of the OCC Flight Dispatcher as contained in the Veteran Avia Operations Manuals Part A section 1.8.6, it indicates that the flight was not properly dispatched. The crew also did not request for the briefing of the Veteran Aviation OCC Flight Dispatcher.

2.3 Aeronautical information management/ Notice to Airmen (NOTAMs)

2.3.1 Departure phase

Evidence available to the Bureau indicates that during the departure phase at Jeddah, the crew was scheduled for pick-up and to proceed for conduct of the flight on 4th December, 2013 at 04:30 local time which was later changed to 10:35 local time same day. At 01:59 local time, the crew received an email which stated that

crew should remain on standby pending the arrival of the operating aircraft from Sharjah, United Arab Emirates.

After series of rescheduled timings, the crew was eventually picked up for departure for the flight at 16:50 local time on 4th December, 2013.

These changes in timing was managed and passed to the crew by the OCC/Dispatcher who was coordinating with the operating aircraft departing Sharjah, United Arab Emirates to Jeddah.

On arrival at the OCC, the crew did not find the Saudia Dispatcher on duty and therefore, were not briefed. However, a folder containing dispatch information for the flight was handed over to the crew. This folder did not contain any information about the displaced runway in Abuja

2.3.2 En-route phase

In accordance with Veteran Avia Operations Manual Part A section 2.4.2.2.3.5 (Communication with the aircraft), the should had been receiving updates and or reviews about the flight progress from the OCC. However, there was no evidence of coordination with the OCC during the course of the flight. The crew did not receive updates with regards to the change of the status of the runway (displaced runway) of the destination Aerodrome.

Although the crew received Airport Terminal Information Service (ATIS) from Abuja, the ATIS did not mention the significant information of displaced threshold and reduced runway length.

2.3.3 Landing phase

During the final approach for landing clearance, the ATC advised the crew to exercise caution, runway length available 2500m. However, the crew did not acknowledge this clearance as it was regarded as a garbled information by the crew.

2.4 Crew action

The Crew received the flight documents from an Air Atlanta dispatcher as there was no Saudia representative present. The flight details which should include every relevant information pertaining the flight and the destination aerodrome should have been provided by Saudia, however the information was obtained from an operator that does not operate into Abuja. The crew should have ensured that they obtained relevant flight document (updated NOTAM) from Saudia.

The crew conducted pre-flight checks and all necessary briefings and reviews as appropriate. The crew knew about the number 2 thrust reverser being inoperative, considered it and prepared adequately for landing without it.

The information Yankee[3] did not carry information about landing distance available.

Although the crew mentioned that they were not aware of the reduced runway length, the CVR transcript, revealed that TWR cleared the aircraft to land with the following information; "wind Zero Six Zero at Zero Three knots check gear down and locked cleared to land runway Zero Four and exercise caution on landing, landing distance available Two Thousand Five Hundred meters' sir". The crew acknowledged; "Roger cleared to land gear is down green light and ah Saudia Six Eight One Four".

The Crew stated that just before landing, at about 400ft Above Ground Level (AGL), Tower said something about runway length in a garbled manner, which none of the crew could make something out of. The crew should have sought clarification about runway length available from the TWR.

If the crew had requested for clarity on the information about the runway length, and it was repeated to them, they could have reconfigured for a missed approach.

During the landing roll, the Tower called the aircraft to "Hold-short Hold-short" however, the aircraft turned to the right to avoid the displaced threshold via exit A3,

[3]Yankee – 'Y' in Automated Terminal Information Service (ATIS)

and veered off to the left of the exit and impacted some construction equipment parked on the side of the runway.

After the impact, the crew reported engine No.2 fire warning and the fire drill was carried out but failed to extinguish the fire even after discharging the two bottles. The captain called for the appropriate checklist and evacuation was initiated. The six crew members evacuated the aircraft unhurt via Avionics compartment through the Main Electronic service door behind the nose wheel.

2.5 Regulation and Safety requirements for runway maintenance

Before the commencement of the runway maintenance, FAAN submitted the operating manuals for DNAA to NCAA for the necessary approval on 25th November, 2013. These manuals contain among other things the specification and standards for the execution of runway maintenance in compliance with Nig.CARs, part 12 - 2012 including safety measures. Investigation revealed that by the time the maintenance commenced on 2nd December, 2013 this approval had not been granted.

FAAN Operations manual stipulates the inclusion of a safety liaison officer as part of runway maintenance team whose responsibility is to ensure that all safety requirements are complied with. FAAN stated that all safety precautions were activated prior to the commencement of the maintenance work, the crew stated that all the entire runway lights were ON during the approach, including the portion where the construction work was going on which is not in compliance with ICAO annex 14 (Aerodromes). The crew stated that during the landing roll, the closed markings of the displaced runway were not properly lit.

During the crash site assessment, it was discovered that the parked maintenance equipment was not properly lit. Furthermore, the displaced threshold markings as stipulated in ICAO annex 14 were not adequately complied with.

3.0 CONCLUSION

3.1 Findings

1. The company had valid Air Operator Certificate (AOC) and also had valid Air Carrier Certificate.
2. The flight crew were certified and qualified to conduct the flight.
3. The flight was operated by Veteran Avia on a wet lease term for Saudi Arabian Airlines.
4. EK-74789 was a charter flight from Jeddah to Abuja and Kano.
5. The Saudia Dispatcher on duty was not available to brief the crew.
6. The crew received the flight folder from a staff of Air Atlanta who was unconnected with the Operations of Veteran Avia.
7. There was no evidence of coordination with the OCC during the course of the flight.
8. The rapidly increasing volume of exchange of aeronautical messages on AFTN at the Lagos AFTN Communication Center has become a challenge, making it necessary to establish a Database where all messages transmitted/received are expected to be stored for easy reference in this type of situation.
9. Abuja Runway 22 was displaced while Runway 04 was operational.
10. The crew were not aware of the NOTAMS on the status of the available runway length in Abuja.
11. The Information on the NOTAM was not on 20:30 UTC Automatic Terminal Information Service (ATIS) broadcast information Yankee.
12. The pilots only became aware of the presence of construction equipment as they were on landing roll.
13. The investigation discovered that, all the airfield/airport operational manuals were not duly approved and endorsed by the NCAA.
14. The crew stated that at some instances, the radio transmission was unreadable, blocked or garbled.
15. NOTAM was issued with regards to the runway maintenance.

16. The aircraft departed Jeddah with no.2 reverser unserviceable and was dispatched (deactivated) as per Minimum Equipment List (MEL).
17. The six-man crew on board evacuated the aircraft via the Electronic & Equipment hatch behind the nose wheel.
18. ATC controller (Tower) passed the landing distance available to the crew while on finals for the Runway 04.
19. There were four NOTAMs on DNAA in the Jet plan folder of 4th December, 2013 provided to SVG6814. None contained any of the NOTAMs issued from Abuja on the information pertaining to the reduced runway length.
20. The scheduled departure of the flight was 15:30UTC on the 4th December, 2013 but actual departure time was 16:47 UTC.
21. The crew did not receive any information about Abuja runway length status from either Kano centre or Abuja control.
22. The runway 22 displaced threshold was not properly defined by lightings and markings as contained in ICAO Annex 14.
23. Runway maintenance equipment was left by the side of an active runway contrary to SARPs as contained in ICAO Annex 14.

3.2 Causal factor

The Crew was not updated on the information available on the reduced runway length.

3.3 Contributory factors

1. Lack of briefing by Saudia dispatcher during pre-flight.
2. Runway status was missing from Abuja ATIS information.
3. Ineffective communication between crew and ATC on short finals.
4. The runway markings and lighting not depicting the displaced threshold
5. The entire runway lighting was ON beyond the displaced threshold

4.0 SAFETY RECOMMENDATIONS

4.1 Safety Recommendation 2020-014

Nigerian Airspace Management Agency (NAMA) should:

Capture all essential information on the Automatic Terminal Information Services (ATIS).

4.2 Safety Recommendation 2020-015

Federal Airports Authority of Nigeria (FAAN) should:

ensure that light at any displaced portion of the runway be switched off so as not to mislead any arriving/landing traffic.

4.3 Safety Recommendation 2020-016

Federal Airports Authority of Nigeria (FAAN) should:

ensure that runway obstructions, and/or runway displaced thresholds are marked/lit in accordance with DNAA Airside Operations Manual and Aerodrome Manual sections 4.10.7a and 4.13.3.4 respectively and communicated on time through NOTAMs to stakeholders.

4.4 Safety Recommendation 2020-021

Veteran Avia should ensure that its operations are in conformity with the approved procedures established in accordance with company manuals.

APPENDICES

Appendix I – Jet Plan Folder (NOTAM DNAA and VAL Flight Plan)

JetPlan.com

PLAN 20222 * * JEPPESEN WEATHER 12/04/13, 04:54:54

AD NOTAMS JED-ABV-LOS/04DEC (DEP DST ALT)

OEJN
OEJN APT 20131200F71V01 A0926/13
Q)OEJD/QMRLC/IV/NBO /A /000/999/N2140.9E03909.3R005
A)OEJN B)201312030400 C)201312121200
E)RWY 16R/34L CLOSED FOR RUBBER REMOVAL

OEJN APT 20131121427V01 V0590/13
Q)OEJD/QPDCH/I /NBO /A /000/999/N2140.9E03909.3
A)OEJN B)201311261054 C)201401082359
E)(MILITARY NOTAM)
[DOD PROCEDURAL NOTAM] STANDARD INSTRUMENT DEPARTURE PROCEDURE CHANGED SID GOLF RWY 16R/16C: PLANVIEW AND DRD: CHANGE TAKE-OFF RWY
16R/16C TO: CLIMB ON HEADING 157 TO 4000. AT JDW VORTAC 7 DME TURN LEFT TO INTERCEPT JDW R-155 OUTBOUND. SID ROUTES AFTER INITIAL CLIMB
UNCHANGED EXCEPT FOR SID NAMES. CHANGE SID NAMES AS FOLLOWS: VATAS 1G TO VATAS 2G, MEVNI 1G TO MEVNI 2G, KAROX 1G TO KAROX 2G, LOPIM 1G
TO LOPIM 2G, SETBA 1G TO SETBA 2G, TONBO 1G TO TONBO 2G, ISLAM 3G TO
ISLAM 4G, OBROD 1G TO OBROD 2G, SENGO 1G TO SENGO 2G.

OEJN APT 20131121084V01 A0912/13
Q)OEJD/QPIXX/ / /A /000/999/N2140.9E03909.3R005
A)OEJN B)201311262200 C)201402112100
E)INST APCH PROC VOR/DME OR TACAN RWY 34R SUSPENDED
AIP PAGE AD 2-OEJN-81 REFER.

OEJN APT 2013101F845V01 Z3419/13
Q)OEJD/QFACH/IV/NBOM/A /000/999/N2140.9E03909.3
A)OEJN B)WIE C)UFN
E)(JEPPESEN TERMINAL CHART CHANGE NOTICE)
(10-9) OBSTACLE NORTHWEST OF THR RWY 16L HAS TO READ 142' AGL INSTEAD OF 142'.

OEJN APT 201310147BBV01 A0860/13
Q)OEJD/QMXLC/IV/M /A /000/999/N2140.9E03909.3R005
A)OEJN B)201310191003 C)201312312300
E)TWY S EAST OF RWY 16C TO WEST OF TWY J CLOSED

OEJN APT 2013091AFAEV01 A0784/13
Q)OEJD/QMRXX/ / /A /000/999/N2140.9E03909.3R005
A)OEJN B)201309261037 C)PERM
E)ALL ACFT VACATING RWY 34L FM TWY B3 NO RIGHT TURN SOUTH BOUND VIA TWY B

OEJN APT 20130620AF8V02 A0471/13
Q)OEJD/QIUXX/ / /A /000/999/N2140.9E03909.3R005
A)OEJN B)201307010133 C)201401022359 EST
E)JDW ILS RWY 34C (NEW EQUIPMENT) FREQ 109.5MHZ CHAN 32X RADIATING 'XXX' ON TEST, DO NOT USE.

OEJN APT 20130620AEEV01 A0470/13
Q)OEJD/QCAAS/IV/B / /000/999/N2140.9E03909.3R005
A)OEJN B)201307010131 C)201401022359 EST
E)JEDDAH ACC SOUTH SECTOR FREQ 121.5MHZ (AL AHSA RCAG) UNSERVICEABLE

OEJN APT 20130620AE0V01 A0469/13
Q)OEJD/QCAXX/ / / /000/999/N2140.9E03909.3R005
A)OEJN B)201307010129 C)201401022359 EST
E)JEDDAH ACC WEST SECTOR NEW FREQ 127.7MHZ (KHAIBAR RCAG) OPERATIONAL.

OEJN APT 20130620A2EV02 A0458/13
Q)OEJD/QIUXX/ / /A /000/999/N2140.9E03909.3R005
A)OEJN B)201307010040 C)201401022359 EST
E)JDW ILS RWY 16C (NEW EQUIPMENT) FREQ 109.7MHZ CH 34X RADIATING 'XXX' ON TSET, DO NOT USE.

DNAA

DNAA APT 2013091D662V01 A0178/13
Q)DNKK/QSTAO/ / /A /000/999/N0900.4E00715.8
A)DNAA B)201309281400 C)201312281400 EST
E)TERMINAL/APPROACH CONTROL SEUVEILLANCE SERVICES FREQ. 127.9MHZ OPERATIONAL.

DNAA APT 2013091C029V01 A0172/13
Q)DNKK/QLXAS/IV/M /A /000/999/N0900.4E00715.8
A)DNAA B)201309270600 C)201312270600 EST
E)TAXIWAY CENTRE LINE LIGHTS UNSERVICEABLE X

DNAA APT 2013091C023V01 A0174/13
Q)DNKK/QMRLX/ / /A /000/999/N0900.4E00715.8
A)DNAA B)201309270600 C)201312270600 EST
E)STOP BAR LIGHTS RUNWAY 04/22 UNSERVICEABLE.

DNAA APT 2013091C022V01 A0173/13
Q)DNKK/QLYAS/IV/M /A /000/999/N0900.4E00715.8
A)DNAA B)201309270600 C)201312270600 EST
E)TAXIWAY EDGE LIGHTS UNSERVICEABLE X

DNMM

DNMM APT 20131201AC9V01 A0217/13
Q)DNKK/QOAXX/ / / /000/999/N0634.7E00319.4
A)DNMM B)201312021300 C)PERM
E)NEW ADDITIONAL OPERATIONAL TELEPHONES LINES IN FORCE IN LAGOS
CONTROL TOWER: +2349091389205
AREA CONTROL CENTER: +2349091389206
APPROACH CONTROL CENTER: +2349091389207
AIS CREW BRIEFING/REPORTING OFFICE: +2349091389209
CENTRAL EXCHANGE (CENTREX): +2349091389210.

CFP SVA6814 OEJN-DNAA

/ / /V E T E R A N A V I A F L I G H T P L A N\ \ \

-IFR SVA6814 /04DEC EK74798 OEJN DNAA ALTN DNMM

TRIP 060203KGS/132725LBS RLS FUEL 081979KGS/180733LBS T/O ALTN

PLAN CALCULATED AT 1140Z/041213 BASED ON 0406UK PROGS

//// R O U T E S U M M A R Y \\\\

DEST DNAA/1993 NM/RTE-OEJNDNAA01

OEJN/ 320

OEJN KARO1C KAROX UB407 PSD UG660 KTM UW110 ILBIB UW605 TJR UB736

JOS UJ332 EDEKO V456 ABC..DNAA

DEP ATIS U1500 16R 220/10 CAVOK 29/19 1010

DEP

DEP ATC CLR ABC RPR BKO B 5262

ARR ATIS Y2030 04 VRB2 CAVOK 29/19 1013 NOSIG

AVG CRZ FFL ____ KGS/HR GC DIST 01993NM CG INDEX ___%

CLB SKD 250/320/.82 CRZ SKD LRC DSC SKD .84/320/250

ALT1 DNMM/0330 NM/ FL0360

/// W E I G H T / F L I G H T L E V E L C O N T I N G E N C Y \\\

RAMP WT 344678 ZFW 263500 TIME 0428 RLS 081979 TRIP 060203 FL320

OEJN/320

WCP M002 AVG TEMP M36

FUEL BURN ADJUSTMENT PER 1000 KG CHANGE IN TKOFF WT. 0160 KG

BLOCK TIMES.....		FLIGHT TIME	
OUT	1550	OFF	1647
IN	2115	ON	2110
BLK	6:25	FLT	4:23

RAMP 344678 PLD 105000 TAXI:OUT MIN/IN MIN SKED 1530UTC/1830LT

CRZ BIAS +04.0 WCP M002 AVG TEMP M36

```
          ////  F U E L   S U M M A R Y  \\\\

         ARPT  FUEL     TIME  DIST          ALL WTS IN KGS
TAXI      OEJN  000800   0000         PLANNED    LIMITING
TRIP      DNAA  060203   0428  2143   PLD 105000
CONTIGENCY      003010   0018         EOW 158500
XTRA            000000   0000
1ST ALTN  DNMM  010589   0051  0330   ZFW 263500
2ND ALTN  NIL                        FUEL
FINAL RESERVE   005500   0030         PTOW 344678  ATOW..342.2
ADDNL HOLD DEST 000000   0000         TRIP 060203
                                      PLDW 284475
                ------
SECTOR FUEL     080102   0607          --- MAX STRUCTURAL WGTS ---
                                      TAKE OFF  WEIGHT 377842
                                      LANDING   WEIGHT 285762
                                      ZERO FUEL WEIGHT 267619
TANKER FUEL     001877   0011                 MLDW 285762
                ------                     ADD TRIP
                                                  ------
TOTAL FUEL PLND 081979   0618  DFOB ......      MTOW
                ------                     LESS ZFW 263500
FUEL OVER DESTN 020976         AFOB ......          ------
                                          FUEL AVBL _____
MDF TO DNMM     016088         BURN ......

ENG#1 BURN ......ENG#2 BURN ......ENG#3 BURN .....ENG#4 BURN ......

-------------------------------------------------------------------------
      ////   N A V I G A T I O N   L O G   \\\\

AIRWAY POINT  SD   MC  ST   ETA   ATA   FL  WCP  MACH SH MFA BURN AC
COORDS        TLDR MH  TTLT TAS   IAS   FIR TD   WIND    MEA FRMG BF
FREQ                     GS          FIR2                KGS|LBS
-------------------------------------------------------------------------
OEJN  KING ABDULAZIZ INTL  1647
 I2140.9E03909.3    ELEV  00048
P

KARO1C D308D  0005 326 001  .48.|.... CLB  P010 CLB  00 050 00192|4
N21452E039066 2138 326 0001 267  |249       P10  167/010 --- 07925|1
                            291       JDW308004

KARO1C D308O  0011 308 002  ..50.|.... CLB  P006 CLB  01 050 00288|6
N21525E038576 2127 306 0003 285  |249       P15  183/010 --- 07829|1
                            387       JDW308015

KARO1C D226O  0022 176 005  ...55|.... CLB  M009 CLB  02 019 00465|1
N21326E038578 2105 177 0008 396  |320       P17  228/013 --- 07652|1
                            394       JDW226015

KARO1C D226Y  0010 225 001  ....56|.... CLB  M014 CLB  02 019 00527|1
N21259E038498 2095 226 0009 408  |319       P17  243/014 --- 07591|1
                            447       JDW226025
```

Appendix II – Dispatch Sheet (Flight Dispatch Release and landing Performance chart)

FLIGHT DISPATCH RELEASE			
DATE	**A/C**	**FLIGHT NO.**	**CAPT**
4-Dec-13	EK-74798	SVA6814	ABDUL WADOOD KHAN
FROM	**TO**	**ALTERNATE(S)**	
OEJN - JEDDAH	DNAA - ABUJA	DNMM - LAGOS	

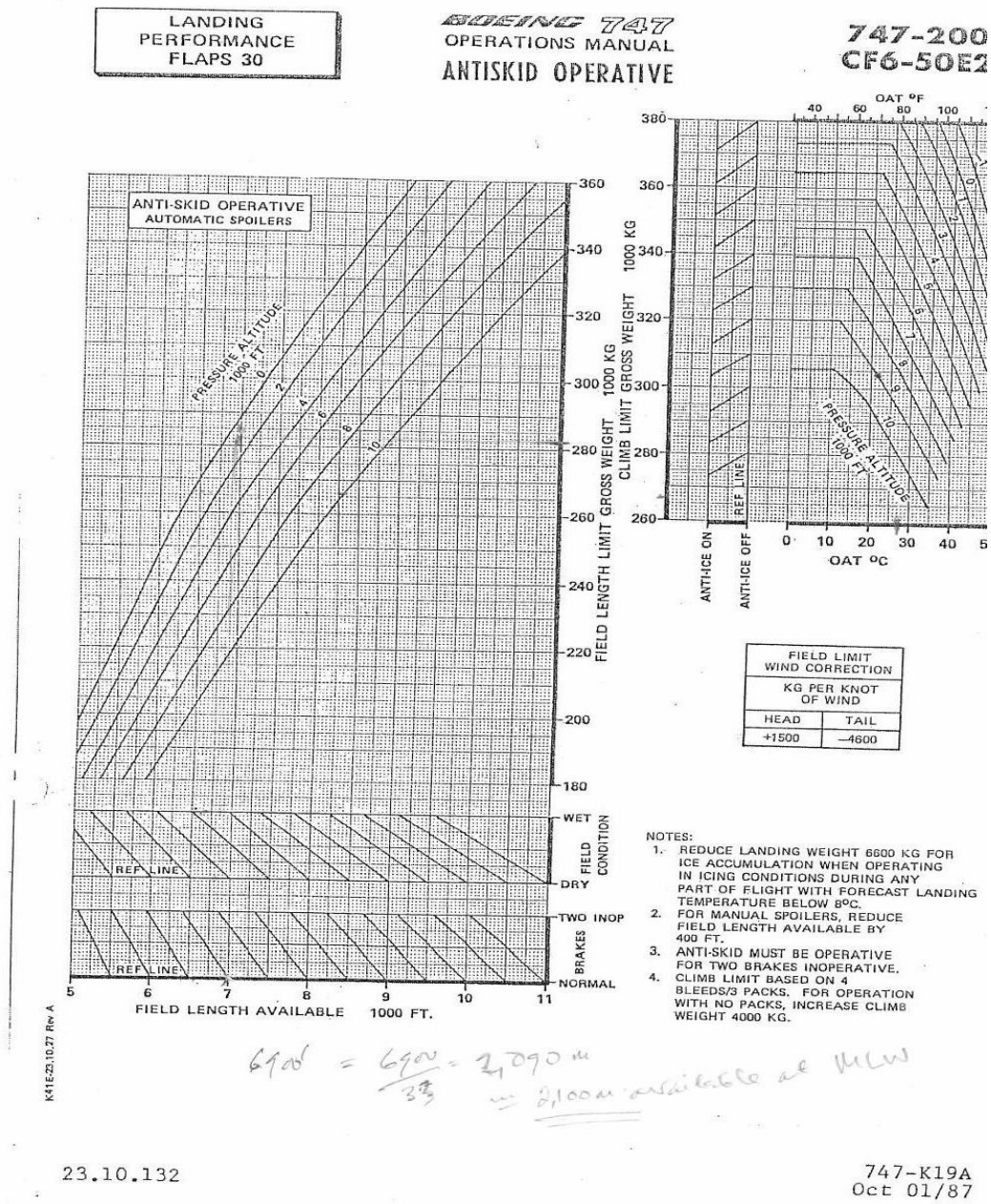
ALLOWABLE WEIGHTS FOR STATION			
RUNWAY	FLAPS	**KGS**	**LBS**
34L	10		
TEMP	30 C	376900	830922
QNH	1011	376200	829379
MEL/DDPG CORRECTION (IF ANY)		0	0
R. R. T. O. G. W		376200	829379
MAX. ALLOWABLE T.O. WEIGHT		**345965**	762722
PLANNED T.O. WEIGHT		344679	759887
PLANNED RAMP WEIGHT		**345479**	**761650**
ZERO FUEL WEIGHT		263500	580918
LANDING WEIGHT		284476	627162
TOTAL OPERATING WEIGHT		239679	528401

PAYLOAD			
Max Allowable		**Planned**	
KGS	**LBS**	**KGS**	**LBS**
107700	237437	**105000**	231485

FUEL		
	KGS	**LBS**
TRIP	60203	132724
BLOCK FUEL (INCLUDED TNK FUEL IF APLICABLE)	**81979**	**180732**
FUEL TANKERED	1877	4138
MDF	16088	35467
FUEL AVBL TO TNKR	1286	2835

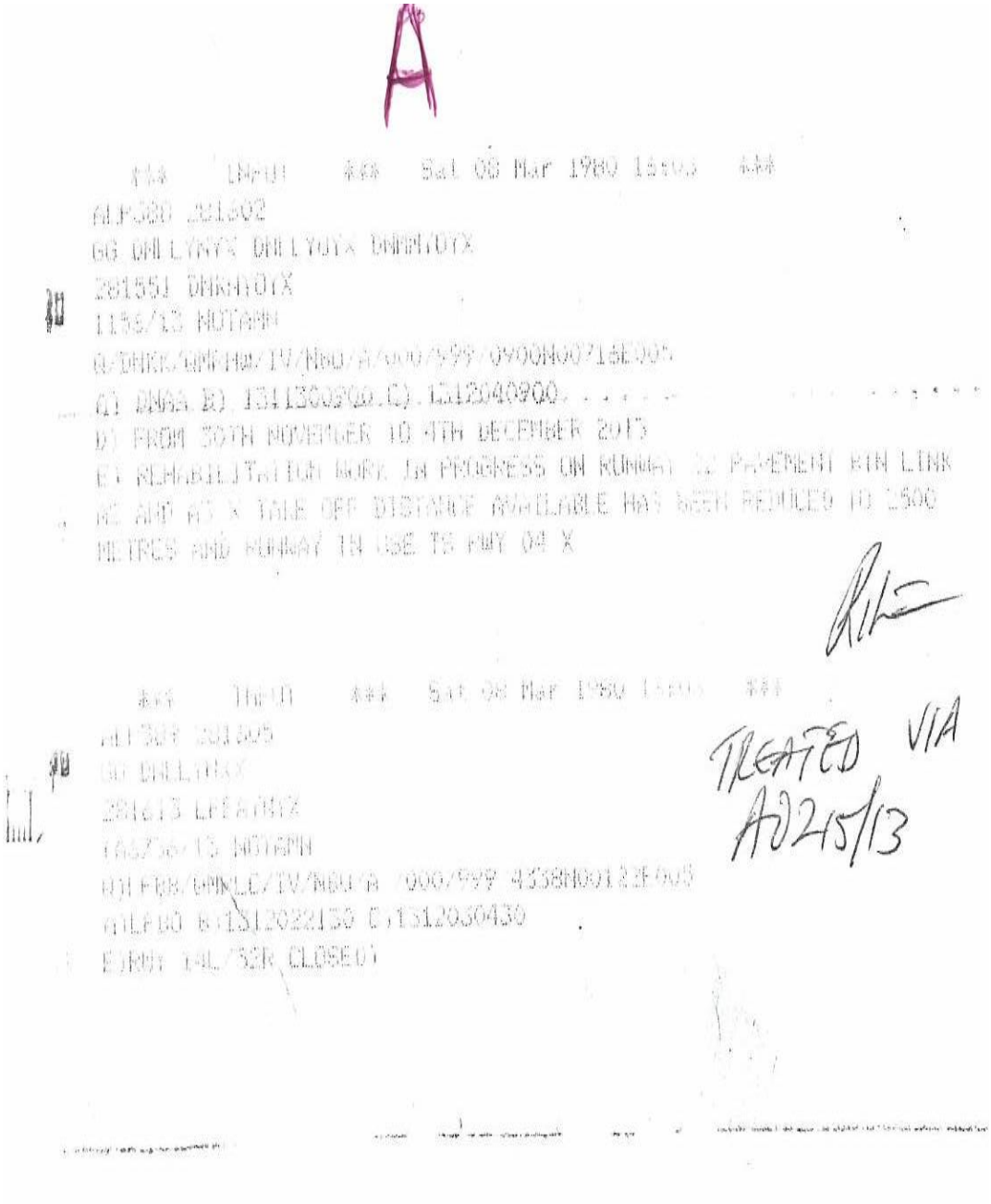
NOTAM: (Affecting operation of Flight)

FILE ATTACHED.



6900 = 6900/33 = 2,090 m
= 2,100 m available at MLW

Appendix III – NOTAM and NOTAM distribution list (A,B,C,D,E,F,G,H,I and J)



A: NOTAM promulgated by Kano

B

NIGERIAN AIRSPACE MANAGEMENT AGENCY
AERONAUTICAL INFORMATION SERVICES

HEADING: GG

NOVEMBER 28th , 2013

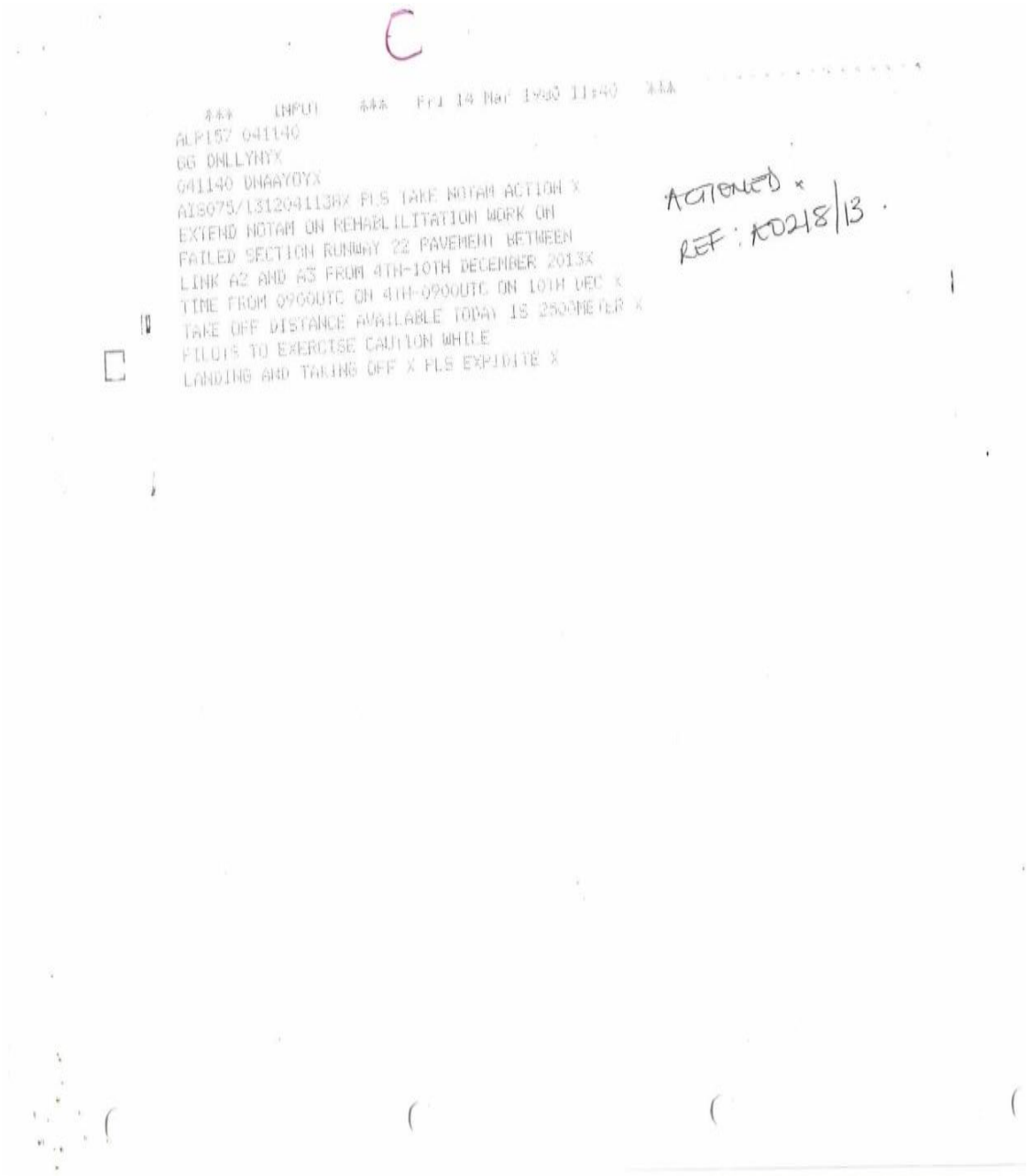
ADDRESS:

DAAAYNYX	DGAAYNYX	DNKNYOYX	DNPOYOYX	DNAAYOYX	DTTCYNYX
BBZZNAXX	EDDZYNYX	FCBBYNYX	EUCHZMFP	FCCCYNYX	FNLUYNYX
SCANYNYX	FVHAINYX	FZAAYNYX	GLRBYNYX	HKNAYNYX	GVACYNYX
HAABYNYX	HECAYNYX	GOOOYNYX	HLLLYNYX	HSSSYNYX	GABSYNYX
GOZZNIGE	UUUUYNYX	LBSFYNYX	LEACYNYX	LFZZNDDN	LHPAAYNYX
LPPPYNYX	LSZHYNYX	MUHAYNYX	KINDYNYX	EDDDYNYX	EUCBZMFP
KDZZHAXX	KDCAYNYX	LSZZNAND	FAJSYNYX	EGGORCLX	KATLYTAA
OBZZNAXX	OYSNYNYX	EHAMYNYX	OBZZNANX	ZBBBYNYX	ZBAAOIXX
DNLLYPYC	DNLLYRYX	OEZZNANX	OLBAYNYX	OBBIYFYX	SBRGYNYX
ETAAYOYA	KDZZNAXX	LIRAYNYX	LIIAYNYX	OEZZNANX	EUECYIYN
GOZZNICE	UUZZNANX	FTTTYOYX	EDDFLHLX	EGZZNDNL	FOOLYNYX
FKKKYFYX	FKKKZPZX	FKKKYOYX	FKKDZQZX	FOOOYOYX	FKKKZTZX
DNLLYNYX	DNMMYOYX	FKKKZRZX	SUMUYNYX	LLZZNLXX	LSZZNADN

ORIGIN: DNLLYNYX

TEXT: A0215/13 *NOTAMN*
Q) DNKK/QMRHW/IV/NBO/A/000/999
A) DNAA B) 1311300900 C) 1312040900
D) FROM 30TH NOVEMBER TO 4TH DECEMBER 2013
E) REHABILITATION WORKS IN PROGRESS ON
RWY22 BETWEEN LINK A2 AND A3x
TAKE-OFF DISTANCE AVAILABLE HAS BEEN REDUCED
TO TWO THOUSAND FIVE HUNDRED METRES (2500
AND RUNWAY IN USE IS RWY 04x
PILOTS ARE ADVISED TO EXERCISE CAUTION
WHILE LANDING AND TAKING-OFF x

B: NOTAM international



C

*** INFO *** Fri 14 Mar 1980 11:40 ***
ALP157 041140
GG ONLLYNYX
041140 DNAAYOYX
A1S075/L3120411380 PLS TAKE NOTAM ACTION X
EXTEND NOTAM ON REMARLILITATION WORK ON
FAILED SECTION RUNWAY 22 PAVEMENT BETWEEN
LINK A2 AND A3 FROM 4TH-10TH DECEMBER 2013X
TIME FROM 0900UTC ON 4TH-0900UTC ON 10TH DEC X
TAKE OFF DISTANCE AVAILABLE TODAY IS 2500METER X
PILOTS TO EXERCISE CAUTION WHILE
LANDING AND TAKING OFF X PLS EXPIDITE X

ACTIONED ×
REF: AD218/13.

C: NOTAM advice received from Abuja

F

D D

NIGERIAN AIRSPACE MANAGEMENT AGENCY
AERONAUTICAL INFORMATION SERVICES

HEADING: GG **4TH DECEMBER, 2013**

ADDRESS:

DAAAYNYX	DGAAYNYX	DNKNYOYX	DNPOYOYX	DNAAYOYX	DTTCYNYX
BBZZNAXX	EDDZYNYX	FCBBYNYX	EUCHZMFP	FCCCYNYX	FNLUYNYX
SCANYNYX	FVHAINYX	FZAAYNYX	GLRBYNYX	HKNAYNYX	GVACYNYX
HAABYNYX	HECAYNYX	GOOOYNYX	HLLLYNYX	HSSSYNYX	GABSYNYX
GOZZNIGE	UUUUYNYX	LBSFYNYX	LEACYNYX	LFZZNDDN	LHPAYNYX
LPPPYNYX	LSZHYNYX	MUHAYNYX	KINDYNYX	EDDDYNYX	EUCBZMFP
KDZZHAXX	KDCAYNYX	LSZZNAND	FAJSYNYX	EGGORCLX	KATLYTAA
OBZZNAXX	OYSNYNYX	EHAMYNYX	OBZZNANX	ZBBBYNYX	ZBAAOIXX
DNLLYPYC	DNLLYRYX	OEZZNANX	OLBAYNYX	OBBIYFYX	SBRGYNYX
ETAAYOYA	KDZZNAXX	LIRAYNYX	LIIAYNYX	OEZZNANX	EUECYIYN
GOZZNICE	UUZZNANX	FTTTYOYX	EDDFLHLX	EGZZNDNL	FOOLYNYX
FKKKYFYX	FKKKZPZX	FKKKYOYX	FKKDZQZX	FOOOYOYX	FKKKZTZX
DNLLYNYX	DNMMYOYX	FKKKZRZX	SUMUYNYX	LLZZNLXX	LSZZNADN

ORIGIN: DNLLYNYX

TEXT: A0218/13 NOTAMR A0215/13
Q) DNKK/QMRHW/IV/NBO/A/000/999
A) DNAA B) 1312040900 C) 1312100900
D) FROM 4TH – 10TH DECEMBER, 2013
E) REHABILITATION WORK IN PROGRESS ON
RWY22 BETWEEN LINK A2 AND A3x
TAKE-OFF DISTANCE AVAILABLE HAS BEEN REDUC
TO TWO THOUSAND FIVE HUNDRED METRES (250(
AND RUNWAY IN USE IS RWY 04x
PILOTS ARE ADVISED TO EXERCISE CAUTION
WHILE LANDING AND TAKING-OFF x

D: NOTAMR for the extension of work

E

NIGERIAN AIRSPACE MANAGEMENT AGENCY
AERONAUTICAL INFORMATION SERVICES

HEADING: GG NOVEMBER 28TH , 2013

ADDRESS:

DAAAYNYX	DGAAYNYX	DNKNYOYX	DNPOYOYX	DNAAYOYX	DTTCYNYX
BBZZNAXX	EDDZYNYX	FCBBYNYX	EUCHZMFP	FCCCYNYX	FNLUYNYX
SCANYNYX	FVHAINYX	FZAAYNYX	GLRBYNYX	HKNAYNYX	GVACYNYX
HAABYNYX	HECAYNYX	GOOOYNYX	HLLLYNYX	HSSSYNYX	GABSYNYX
GOZZNIGE	UUUUYNYX	LBSFYNYX	LEACYNYX	LFZZNDDN	LHPAYNYX
LPPPYNYX	LSZHYNYX	MUHAYNYX	KINDYNYX	EDDDYNYX	EUCBZMFP
KDZZHAXX	KDCAYNYX	LSZZNAND	FAJSYNYX	EGGORCLX	KATLYTAA
OBZZNAXX	OYSNYNYX	EHAMYNYX	OBZZNANX	ZBBBYNYX	ZBAAOIXX
DNLLYPYC	DNLLYRYX	OEZZNANX	OLBAYNYX	OBBIYFYX	SBRGYNYX
LTAAYOYA	KDZZNAXX	LIRAYNYX	LHAYNYX	OEZZNANX	EUECYIYN
GOZZNICE	UUZZNANX	FTTTYOYX	EDDFLHLX	EGZZNDNL	FOOLYNYX
FKKKYFYX	FKKKZPZX	FKKKYOYX	FKKDZQZX	FOOOYOYX	FKKKZTZX
DNLLYNYX	DNMMYOYX	FKKKZRZX	SUMUYNYX	LLZZNLXX	LSZZNADN

ORIGIN: DNLLYNYX

TEXT: A0215/13 *NOTAMN*
Q) DNKK/QMRHW/IV/NBO/A/000/999
A) DNAA B) 1311300900 C) 1312040900
D) FROM 30TH NOVEMBER TO 4TH DECEMBER 2013
E) REHABILITATION WORKS IN PROGRESS ON
RWY22 BETWEEN LINK A2 AND A3x
TAKE-OFF DISTANCE AVAILABLE HAS BEEN REDUCED
TO TWO THOUSAND FIVE HUNDRED METRES (2500
AND RUNWAY IN USE IS RWY 04x
PILOTS ARE ADVISED TO EXERCISE CAUTION
WHILE LANDING AND TAKING-OFFx

E: Appendix A received by communication department

F

NIGERIAN AIRSPACE MANAGEMENT AGENCY
AERONAUTICAL INFORMATION SERVICES

HEADING: GG **4TH DECEMBER, 2013**

ADDRESS:

DAAAYNYX DGAAYNYX DNKNYOYX DNPOYOYX DNAAYOYX DTTCYNYX
BBZZNAXX EDDZYNYX FCBBYNYX EUCHZMFP FCCCYNYX FNLUYNYX
SCANYNYX FVHAINYX FZAAYNYX GLRBYNYX HKNAYNYX GVACYNYX
HAABYNYX HECAYNYX GOOOYNYX HLLLYNYX HSSSYNYX GABSYNYX
GOZZNIGE UUUUYNYX LBSFYNYX LEACYNYX LFZZNDDN LHPAYNYX
LPPPYNYX LSZHYNYX MUHAYNYX KINDYNYX EDDDYNYX EUCBZMFP
KDZZHAXX KDCAYNYX LSZZNAND FAJSYNYX EGGORCLX KATLYTAA
OBZZNAXX OYSNYNYX EHAMYNYX OBZZNANX ZBBBYNYX ZBAAOIXX
DNLLYPYC DNLLYRYX OEZZNANX OLBAYNYX OBBIYFYX SBRGYNYX
ETAAYOYA KDZZNAXX LIRAYNYX LIIAYNYX OEZZNANX EUECYIYN
GOZZNICE UUZZNANX FTTTYOYX EDDFLIHLX EGZZNDNL FOOLYNYX
FKKKYFYX FKKKZPZX FKKKYOYX FKKDZQZX FOOOYOYX FKKKZTZX
DNLLYNYX DNMMYOYX FKKKZRZX SUMUYNYX LLZZNLXX LSZZNADN

ORIGIN: DNLLYNYX

TEXT: A0218/13 NOTAMR A0215/13
Q) DNKK/QMRHW/IV/NBO/A/000/999
A) DNAA B) 1312040900 C) 1312100900
D) FROM 4TH – 10TH DECEMBER, 2013
E) REHABILITATION WORK IN PROGRESS ON
RWY22 BETWEEN LINK A2 AND A3x
TAKE-OFF DISTANCE AVAILABLE HAS BEEN REDU
TO TWO THOUSAND FIVE HUNDRED METRES (25
AND RUNWAY IN USE IS RWY 04x
PILOTS ARE ADVISED TO EXERCISE CAUTION
WHILE LANDING AND TAKING-OFF x

F: NOTAM extension received by communication department

G

NOVEMBER 29TH, 20

NIGERIAN AIRSPACE MANAGEMENT AGENCY
AERONAUTICAL INFORMATION SERVICE

AIRPORT OFFICIALS DISTRIBUTION LIST

PUBLICATIONS:

1. NOTAM (~~NAT.~~ / INTER.) A0215/13 NOTAMN
2. NOTAM LIST. (NAT. /INTER.)
3. A.I.C
4. BULLETIN
5. AIP SUP

NO.	AIRPORT OFFICIAL	NAME OF OFFICER	SIGNATURE OF OFFICER	DATE & TIME	E MAIL ADDRESS
1.	AIRSPACE MANAGER	Opeoluwa		29/11/13	
2.	AIRPORT MANAGER			29/11/13	
3.	HOD AIS			29/11/13	
4.	HOD ELECTRO/ MECH	S. Musa		29/11/13	
5.	HOD NAV AIDS				
6.	HOD ELECTRO/ COMM	Dorothy		29/11/13	
7.	HOD SURVEILLANCE				
8.	ATOM	Ruth		29/11/13	
9.	QAM				
10.	FIC SUPERVISOR	Daniel		29/11/13	
11.	RADAR SUPERVISOR	Ruth		29/11/13	
12.	CONTROL TOWER SUPERVISOR	Uche		29/11/2013	
13.	HOD COMMS				
14.	CREW BRIEFING OFFICE			29/11/13	
15	TERMINAL SUPERVISOR (MMIA)			29/11/13	
16.	FIRE OFFICE	Olaniyi		29/11/13	
17.	NIMET MANAGER	Salami I.		29/11/13	
18	MILITARYAIRPORT COMMANDANT.	Yerima		29/11/13	

G: NOTAM for Airport officials (ref No:A02015/13)

H

29TH NOV. 201

AIS PUBLICATIONS DISTRIBUTION LIST
FOREIGN BASED AIRLINE

PUBLICATIONS: 1) NOTAM A0215/13 NOTAMN
2) NOTAM LIST.
3) A I C
4) BULLETIN
5) AIP SUP.

DISTRIBUTION OFFICES

NO.	AIR LINE	NAME	SIGNATURE OF RECIPIENT	DATE
1.	ALLITALIA			
2.	AIR FRANCE	SAMUEL	SAM	29/11/13
3.	AERO CONTRACTORS	FRANCIS		29/11/13
4.	ASKY AIRLINES	SAM		29/11/13
5.	ARIK AIR			
6.	ASSOCIATED			
7.	AFRIJET/MKA AIRLINES			
8.	BRITISH AIR	TUNDE		29/11/13
9.	BASE AVIATION			
10.	CAMEROUN AIR			
11.	CHANCHANGI AIRLINES			
12.	CARGOLUX			
13.	DELTA AIRLINES			
14.	DHL/I ANDOVER			
15.	DANA AIRLINES			
16.	DAS/ALLIED AIR	Abby		30/11/13
17.	ETIHAD AIRWAYS			
18.	EMIRATES	AKINOLA/SAM		29/11/13
19.	EGYPT AIR			
20.	ETHIOPIAN AIR	DANIA		29/11/13
21.	EXECUJET AVIATION			
22.	EAN AVIATION			
23.	IBERIA AIRLINE			
24.	IDEAL AIR			
25.	KLM ROYAL DUTCH AIR			
26.	KENYA AIRWAYS			
27.	KINGS AIRLINES			
28.	LUFTHANSA AIR	DANIEL		29/11/13
29.	LEWIS COOPER			
30.	LCIA			
31.	MED-VIEW AIRLINES			
32.	MIDDLE EAST AIR	STEVEN		30/11/13
33.	OVERLAND AIRWAYS			
34.	QATAR AIRWAYS	JATTO		30/11/13
35.	RWANDAIR			
36.	SOUTH AFRICAN AIR	DANIA		30/11/13
37.	TURKISH AIRLINES			
38.	TOPBRASS AVIATION	SAMUEL		1/12/13
39.	UNITED AIR			
40.	VIRGIN ATLANTIC			
41.	VISTA JET			
42	BAS Helicopter	Andrew		30/11/13
X3	DORNIER	NIKKY		30/11/13

H: NOTAM for Airliners (ref No:A02015/13)

I

04/12/13

NIGERIAN AIRSPACE MANAGEMENT AGENCY
AERONAUTICAL INFORMATION SERVICE

AIRPORT OFFICIALS DISTRIBUTION LIST

PUBLICATIONS:

1. NOTAM (~~NAT.~~ / INTER.) A 0218/13 NOTAMR A 0215/13
2. NOTAM LIST. (NAT. /INTER.)
3. A.I.C
4. BULLETIN
5. AIP SUP

NO.	AIRPORT OFFICIAL	NAME OF OFFICER	SIGNATURE OF OFFICER	DATE & TIME	E MAIL ADDRESS.
1.	AIRSPACE MANAGER			4/12/13	
2.	AIRPORT MANAGER			4/12/13	
3.	HOD AIS			04/12/13	
4.	HOD ELECTRO/ MECH			4/12/13	
5.	HOD NAV AIDS			4/12/13	
6.	HOD ELECTRO/ COMM				
7.	HOD SURVEILLANCE				
8.	ATOM			4/12/13	
9.	QAM				
10.	FIC SUPERVISOR			4/12/13	
11.	RADAR SUPERVISOR			4/12/13	
12.	CONTROL TOWER SUPERVISOR			4/12/13	
13.	HOD COMMS				
14.	CREW BRIEFING OFFICE			04/12/13	
15	TERMINAL SUPERVISOR (MMIA)			04/12/13	
16.	FIRE OFFICE			04/12/13	
17.	NIMET MANAGER			04/12/13	
18	MILITARYAIRPORT COMMANDANT.	LCPL DANIEL C		04/12/13 15:15pm	

I: NOTAM for airport officials (REF No: A02018/13)

J

04/12/13

AIS PUBLICATIONS DISTRIBUTION LIST
FOREIGN BASED AIRLINE

PUBLICATIONS: 1) NOTAM A0218/13 NOTAMR A0215/13
2) NOTAM LIST.
3) A I C
4) BULLETIN

DISTRIBUTION OFFICES

NO.	AIR LINE	NAME	SIGNATURE OF RECIPIENT	DATE
1.	ALLITALIA			
2.	BRITISH AIR	TUNDE		04/12/13
3.	CAMEROUN AIR			
4.	EGYPT AIR	SAM		04/12/13
5.	ETHIOPIAN AIR			
6	AIR GABON			
7.	AFRIQIYAH AIRWAYS			
8.	LUFTHANSA AIR	DANIEL		04/12/13
6.	SOUTH AFRICA AIR			
7.	KLM ROYAL DUTCH AIR			
8.	MIDDLE EAST AIR	STEVEN		04/12/13
9.	VIRGIN NIGERIA			
10.	AIR FRANCE	SAMUEL		05/12/13
11.	DAS/ALLIED AIR			
12.	KENYA AIRWAYS			
13.	VIRGIN ATLANTIC	VICTOR		05/12/13
14.	IBERIA AIRLINE			
15.	BELLVIEW AIR			
16.	DHL/LANDOVER			
17.	AFRIJET/MKA AIRLINE			
18.	KINGS AIRLINE			
19.	CARGOLUX			
20.	EMIRATE	AKINOLA		4/12/13
21.	SOUTHERN AIRLINE			
22.	BASE AVIATION SYSTEM			
23.	CHINA SOUTHERN AIR			
24.	NORTH AMERICAN AIRLINES			
25.	ARIK AIR			
26.	DELTA AIRLINES			
27.	MED-VIEW AIRLINES			
28.	AVIENT AVIATION			
29	QATAR AIRWAYS			
30	AERO CONTRANTORS			
31	KING AVIATION / IGI BROSS AVIATION	ADE SAMUEL		04/12/13 4/12/13
	NAF OPS	Emma		05/12/13
	Execujet AVIATION	Ernest		05/12/13
	DANA AIR	Anthony		5/12/13
	EVERGREEN	TESTER		5/12/13

J: NOTAM for Airlines (ref No: A02018/13)