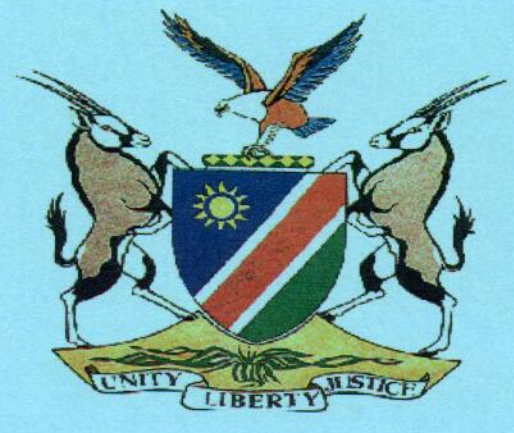

REPUBLIC OF NAMIBIA

MINISTRY OF WORKS AND TRANSPORT

DIRECTORATE OF AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATION

CIVIL AIRCRAFT ACCIDENT REPORT

ACCID / 171119 / 01-01

OPERATION	**:**	**TRAINING**
AIRCRAFT	**:**	**PARACHUTE**
LOCATION	**:**	**SWAKOPMUND AIRFIELD**
DATE	**:**	**17 NOVEMBER 2019**

REPUBLIC OF NAMIBIA

MINISTRY OF WORKS AND TRANSPORT

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022

AIRCRAFT ACCIDENT INVESTIGATION
Private Bag 12042
Ausspannplatz
Windhoek
NAMIBIA

Enquiries: O. V. Plichta **Our Ref: 3/48** **Date:** 17 July 2020

To : Honorable Minister: Works and Transport

From : Director: Aircraft Accident Investigation

RE: PARACHUTE ACCIDENT REPORT

Please find attached the final report on the above subject accident. In accordance with the International Civil Aviation Organization Annex 13 – Aircraft Accident and Incident Investigation – Standard 6.13, final reports shall be published as soon as possible in the interest of accident prevention.

It is recommended that copies of these final reports be made available to the public and other interested parties upon request. Your approval is therefore sought to release the said reports.

Magnus Abraham
DIRECTOR: AIRCRAFT ACCIDENT INVESTIGATION

MINISTRY OF WORKS AND TRANSPORT
Directorate of Aircraft Accident & Incident Investigations
2020 -07- 16
Office of the Director
Private Bag 12042, Ausspannplatz
Republic of Namibia

FOREWORD

This report presents the factual information, data analysis, conclusions, and safety recommendations reached during the investigation. The purpose of the investigation was to establish the circumstances surrounding this accident.

In accordance with the provisions of Annex 13 to the convention on International Civil Aviation Organization, and Aviation Act, (Act No. 6 of 2016), the accident's analysis, conclusions, and safety recommendations contained therein are intended neither to apportion blame nor to single out any individual or group of individuals. The main objective was to identify the systematic deficiencies and draw lessons, from the occurrence, which might help to prevent accidents and incidents in the future. To this end, many a time, the reader may be interested in whether or not an issue was a direct cause of the accident (that has already taken place), whereas the investigator is mainly concerned with the prevention of future accidents/incidents.

As a result, usage of this report for any purpose other than (the latter and spirit of Annex 13 and Aviation Act, (Act No. 6 of 2016) or other relevant statutes) prevention of similar occurrences in the future might lead to erroneous interpretations and applications.

MINISTRY OF WORKS AND TRANSPORT | ACCID/171119/01-01

DIRECTORATE: AIRCRAFT ACCIDENT AND INCIDENT INVESTIGATIONS

ACCIDENT REPORT – EXECUTIVE SUMMARY

Aircraft Registration	**NONE**	**Date of Accident**	17 NOV 2019	**Time of Accident**	12:40 UTC
Type of Aircraft	PARACHUTE		**Type of Operation**	TRAINING COURSE AFF	
Pilot-In-Command License Type	N/A	**Age**	33	**License Valid**	Yes
Pilot-In-command Flying Experience	Total Jumps	13		Jumps on Type	12
Last point of departure	Swakopmund airfield (FYSM)				
Next point of intended landing	Swakopmund airfield (FYSM)				
Location of the incident site with reference to easily defined geographical points (GPS readings if possible)					
Swakopmund Airfield Runway 26					
Meteorological Information	Surface wind: Calm, Visibility: +10Km, Temperature: 24°C, Cloud base: Nil: Cloud cover: 3 Ochtas, Dew point: Not known				
Number of people on board	N/A	**No. of people injured**	0	**No. of fatalities**	1

Synopsis

On 17 November 2019 at 12H40 UTC a Chinese National conducted an Accelerated Free Fall jump, at the Swakopmund Airfield Drop Zone as part of her training to qualify for a free fall skydiver. The student had conducted 12 jumps already over a period of 2 weeks of which the first was a Tandem jump for introductory purposes to the sport.

After take-off from Swakopmund Airfield, the aircraft conducting the airdrop climbed to 10 000 feet and the skydivers jumped out in an operations normal situation. The student was accompanied by an instructor who evaluated the jump progress and acted as a safety jumper assigned to that student. The student performed her tasks for the training level required and at 5000 feet deployed her main parachute, as per instruction from the instructor. The duration of the jump was video recorded and on opening of her main parachute, she experienced a line twist which was rectified by the student and a normal flying parachute was observed onwards. The instructor then lost sight of the student while opening his own parachute and flew down to the drop zone.

The Safety Officer of the Training Facility was waiting for the drop to be completed on the ground and saw the student coming down with a slight right-hand turn and at 400 feet performed a cutaway of the main Parachute while an attempt to open the reserve chute was executed. The main chute only dislodged on the right main shoulder strap while the reserve chute got entangled into the main chute draglines. The reserve chute did not open due to the low altitude and the student fell without chute assistance and was fatally injured on impact.

Emergency services was duly on the scene but could not revive the student and she was declared dead by a doctor on site.

During the investigation by the Directorate of Aircraft Accident and Incident Investigations an Independent Parachute Expert from Namibia was also used to look into the probable cause of the accident.
The ground inspection of the equipment was carried out in Swakopmund in conjunction with a Namibian Police team of investigators for legal inquest purposes.

Probable Cause

Impact with ground.

AIRCRAFT ACCIDENT REPORT

Name of Owner / Operator	**: Swakopmund Skydiving Club**
Manufacturer	**: NA**
Model	**: NA**
Nationality	**: NA**
Registration Marks	**: NA**
Place	**: Swakopmund Airfield Namibia**
Date	**: 17 November 2019**

All times given in this report is Co-ordinated Universal Time (UTC), unless otherwise stated.

Disclaimer:

The report is produced without prejudice to the rights of the Directorate of Aircraft Accident Investigations, which are reserved.

Purpose of the Investigations:

In terms of the aviation Act (act No 6 of 2016) and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of risk of aviation accident or incidents and **not to apportion blame or establish legal liability.**

This report contains fact relating to aircraft accidents or incidents which have been determined at the time of issue.

The report may therefore be revised should new and substantive facts be made available to the investigator.

1. FACTUAL INFORMATION

1.1 History of Jump

1.1.1 On 17 November 2019 around 12:40 UTC, a Chinese National conducted an Accelerated Free Fall jump at the Swakopmund Airfield Drop Zone as part of her training to qualify as a free fall skydiver.

1.1.2 The prevailing weather was good with light winds and unlimited visibility. Three Octas of cloud was present at 3000 feet.

1.1.3 The student had already conducted 12 jumps over a period of 2 weeks following a set training program which is internationally recognized at worldwide Drop Zones.

1.1.4 The jump in which she participated was conducted with her Instructor to evaluate her progress and act as a safety jumper.

1.1.5 After take-off from Swakopmund Airfield, the aircraft climb to 10 000 feet and the skydivers jumped out in an operations normal situation. The student performed her task for the training level required and at 5000 feet deployed her main parachute as per instruction from her Instructor.

1.1.6 The duration of the jump was video recorded and on opening of her main parachute, she experienced a line twist which was rectified by her and a normal flying canopy was observed onwards. The Instructor lost sight of the student while operating his own parachute and flew down to the drop zone.

1.1.7 The Safety Officer of the Training Facility was waiting for the drop to be completed on the ground and observed the student coming down to the drop zone in a slight right-hand turn attitude. However at about 400 feet the student performed a cutaway drill from the main parachute and executed a deployment of her reserve chute.

1.1.8 The main parachute only dislodge on one main shoulder strap while the reserve parachute got entangled with the main chute draglines. The reserve chute did not open due to the low altitude remaining and the student fell without chute assistance to hit the ground at a fairly high speed. The student was fatally injured on impact.

1.1.9 Emergency services was duly on the scene but could not revive the student and was declared dead on the scene by a doctor which happen to be at the Drop zone.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	-	-	-	1
Serious	-	-	-	-
Minor	-	-	-	-
None	-	-	-	-

1.3 Damage to Parachute

1.3.1 None.

1.4 Other Damage

1.4.1 No other damage was caused.

1.5 Personnel information

Nationality		Chinese			
Licence No	Not applicable	Gender	Female	Age	33
Licence valid		Not applicable	Type endorsed	Not applicable	
Ratings		Not applicable			
Medical expiry date		Not applicable			
Restrictions		Not applicable			
Previous accidents		Not applicable			

Skydive Experience:

Total Jumps	13
Introduction Tandem Jump	1
Total on type past 90-days	13
Total on type	12

1.6 Parachute information

Main Parachute:

Type	Navigator 200
Serial No.	NA200-002727
Manufacture	USA

Year of manufacture	Not available
Total jumps (at time of accident)	Not available

Reserve Parachute:

Type	SMART 175
Serial No.	ST175-13599
Date of manufacture	15 January 2019
Total deployments	None

1.7 Meteorological Information

1.7.1 The weather was good with light winds and three Octas of cloud layer at 3000 ft.

1.8 Aids to student

1.8.1 The student had a functional altitude meter availible strapped to her left hand to verify her height decelaration progress during the free fall.

1.8.2 The Altitude meter indicated clear specified heights to the student to easily recognise the caution and minimum height for deployment of the reserve parachute (refer to image 5).

1.9 Communications

1.9.1 The student was not equipped with standard radio communication equipment in her safety helmet on this jump to receive instuctions from the ground observers.

1.10 Aerodrome information

1.10.1 The accident occurred at the Swakopmund Airfield Drop Zone.

1.11 Flight recorders

1.11.1 The Instructor was equiped with a video camera to record the student progress for evaluation purposes.

1.11.2 The video footage was made availaible to the DAAII for review with an Parachute Expert during the investigation.

1.11.3 The student training videos and photos were also reviewed by the DAAII.

No further information on this page

1.12 Wreckage and impact information

1.12.1 Reserve parachute deployment
Image 1: Reserve shoot cable position

Image 1: Unsuccessful reserve chute deployment handle (red arrow)

1.12.2 Left main parachute attachment

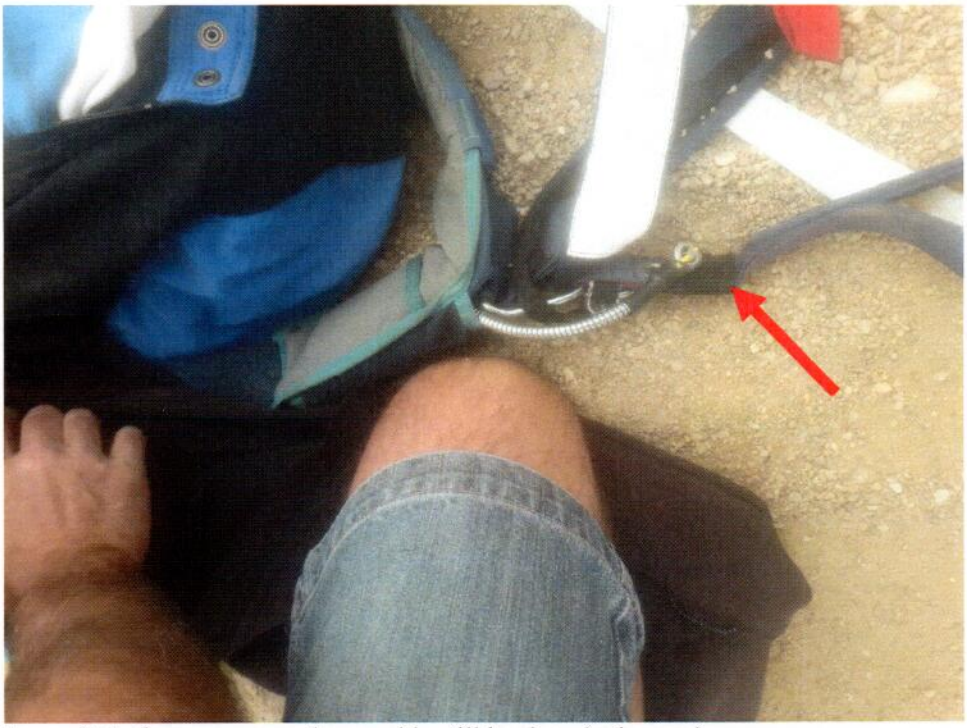

Image 2: Left emergency release cable still in place (red arrow)

1.12.3 Reserve shoot drogue entangled with main parachute

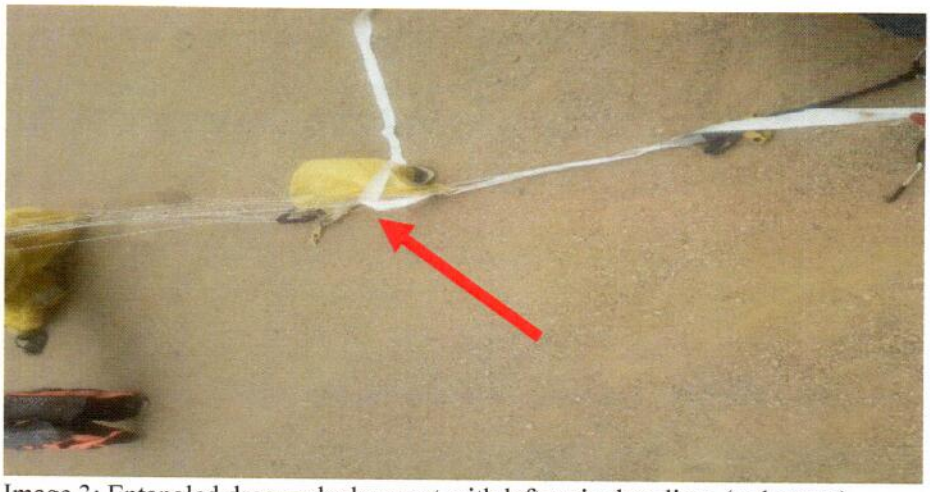

Image 3: Entangled drogue deployment with left main drag lines (red arrow)

1.12.4 Left main paracute strap still attached to harnass

Image 4

No further information on this page

1.12.5 Unsuccessfull deployment of reserve parachute system still intact.

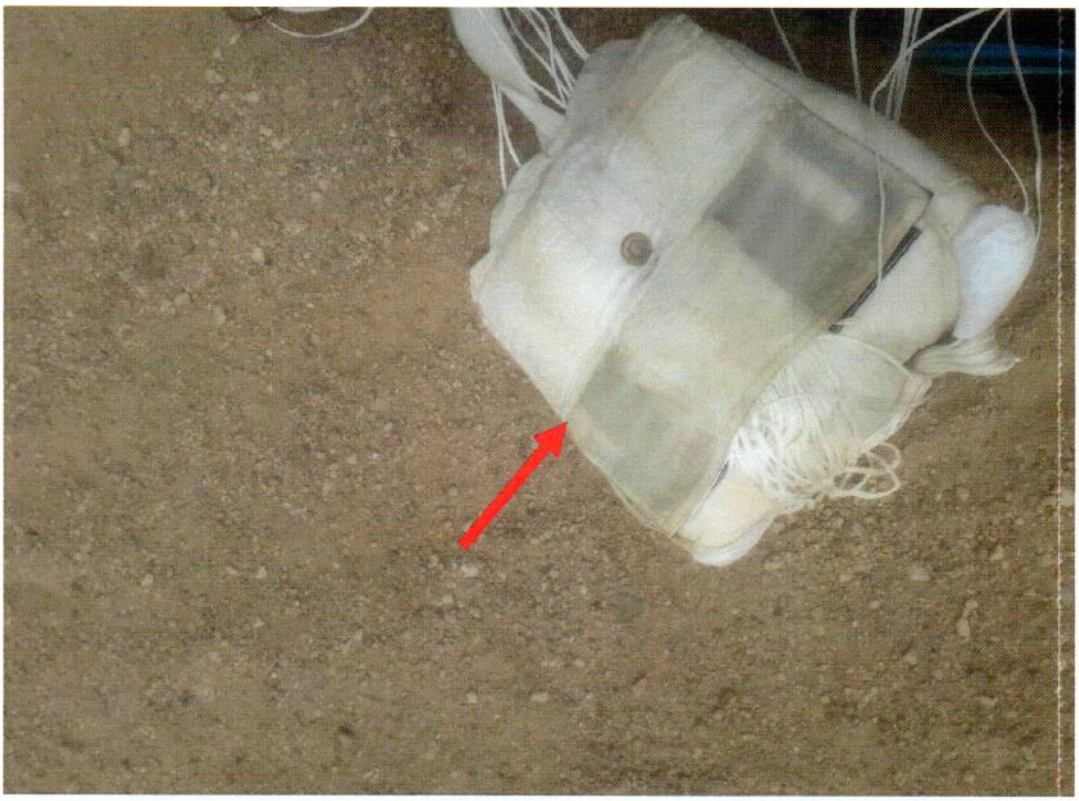

Image 5

1.12.6 Altitude meter provided to student by the training organisation

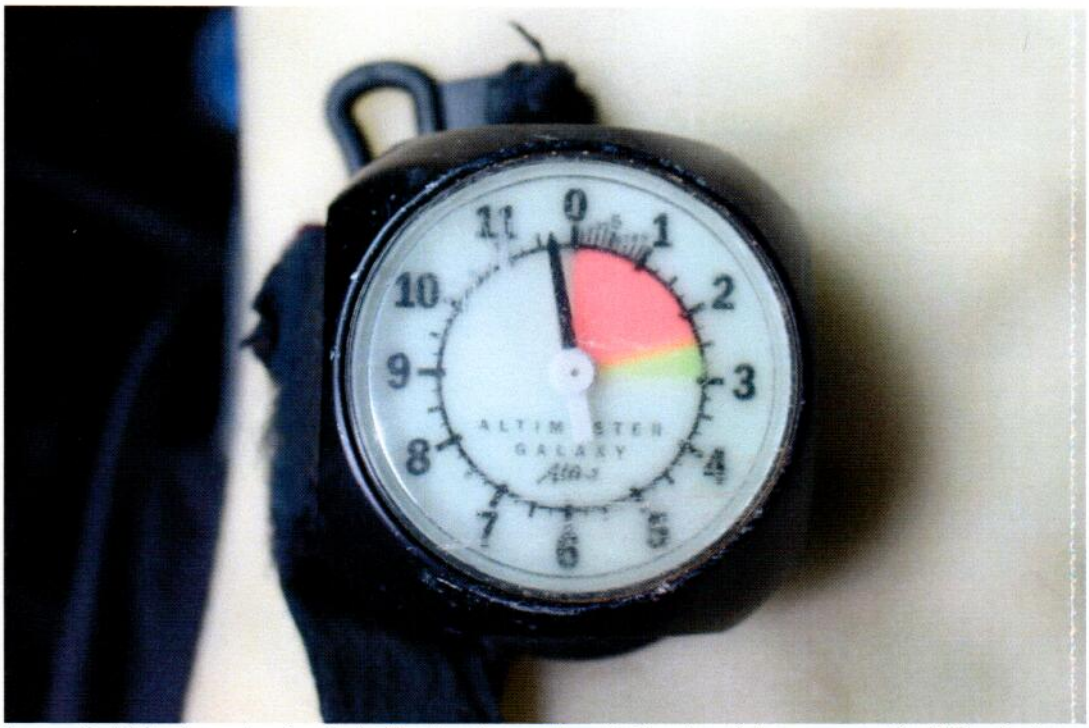

Image 6: Altitude meter clearly indicating the caution (yellow) and danger zone (red) for deployment

of reserve parachute.

1.13 Medical and pathological information

1.13.1 The student was fatally injured on impact.

1.14 Fire

1.14.1 N/A

1.15 Survival aspects

1.15.1 The accident was deemed not to be survivable due to the high impact force. This was a direct result of the main canopy collapse not providing flight.

1.16 Tests and research

1.16.1 The Parachute and Reserve chute was handed to the DAAII on arrival at the Swakopmund Airfield for review with the NAMPOL Investigators.

1.16.2 Expert assistance was obtained from a local Namibian Parachute Instuctor to clarify the component failure sequences.

1.16.3 No abnormalities were found with the parachute equipment available and all possibilities of a malfunction was ruled out.

1.17 Organizational and management information

1.17.1 The training was conducted by the Swakopmund Parachute Skydive Club with facilities at the Swakopmund Airfield.

1.17.2 The Instructor was a French National with the appropiate licence to conduct the training in Namibia.

1.17.3 The student was part of a tourist group to Swakopmund and joined for a accelerated Free Fall course.

1.17.4 The training facility was registered at the Namibian Civil Aviation Authoriy to conduct Paradrop operations in Namibia.

1.17.5 The training facility was authorised to conduct accellerated courses in Namibia as per international compliance standards.

1.18 Additional Information

1.18.1 The accelerated free fall consists of 10 levels. It is required from a student to comply with the level standards before they can proceed to the next level. This student managed to advance to level 6 and her progress was evaluated at this level.

1.19 Useful or effective investigation techniques

1.19.1 None.

2. ANALYSIS

2.1 On the 17 November 2019 a Chinese National conducted a free fall jump as part of her course training program at Swakopmund Airfield Drop Zone.

2.2 The student was accompanied by her Instructor for safety and evaluation purposes. Video capturing

was used for progress report and analysing of the required drills for a level 6 jump.

2.3 The jump was conducted from 10 000 feet down to 5000 feet on accelerated free fall. The instructor gave the Parachute opening sign and the student performed it correctly.

2.4 The video footage showed a line twist which was corrected by the student and a normal forward flight was observed at the point when the Instructor also deployed his parachute.

2.5 The student was not wearing a radios assisted helmet on this particular jump and could not receive information from the safety officer on the ground.

2.6 The Safety Officer of the Drop Zone was on the ground observing the student coming down in a normal flight configuration. The student then performed a main parachute cut away drill at about 400 feet above ground.

2.7 The main parachute only released on the right shoulder harness buckle. The left main harness release cable was not pulled out all the way. This kept the left main harness strap attached to the student harness resulting in an entanglement with the reserve Parachute deployment.

2.8 Although the failed main parachute and reserve parachute caused a lot of drag the student hit the ground with a high energy impact.

2.9 The student was fatally injured and paramedics could not revive her on the scene of accident.

2.10 The training procedures prohibited a main parachute cut away drill below 3000 feet above ground as the reserve parachute needs 2000 feet to fully deploy effectively.

2.11 The weather was fine in the area with unrestricted visibility and did not play a role in the accident.

2.12 The mode of instruction generally is English, however for this course a Chinese instructor assisted with translation from English to Chinese.

3. CONCLUSION

3.1 Findings

3.1.1 The student was on a level 6 accelerated free fall jump as part of an international training course.

3.1.2 The student performed the correct drills for the jump required.

3.1.3 The student on opening her main parachute had a line twist which was duly rectified by her. A normal flying canopy was then observed by the Instructor attached to the student for evaluation.

3.1.4 The Safety Officer for the Club observed the student coming down to the drop zone with a normal flying canopy.

3.1.5 The reserve chute was deployed at 400 feet against specific operating instructions. Operating limits for the reserve chute are set to 3000 feet.

3.1.6 No feasible answer could be found for the actions of the student in the operating of the equipment on this jump.

3.1.7 The main parachute was found with only one brake system deployed. The cutaway cables to the main chute was found to be released halfway, which resulted in the short cable releasing the right main shoulder strap.

3.1.8 The height was insufficient for the deployment of the reserve parachute canopy. The spring operated drogue got entangled in the left main parachute shoulder harness strap.

3.1.9 The training records and video material was made available for the investigator on scene. An expert parachute instructor assisted in the investigation to the accident.

3.1.10 The Swakopmund Skydive Club was certified to conduct training by the NCAA and valid on the day of the accident.

3.1.11 The Instructor was qualified for the jump and had a valid licence to conduct training for the club in Namibia.

3.2 Probable cause

3.2.1 Impact with ground.

4. SAFETY RECOMMENDATIONS

4.1 None

Compiled by:

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O.V. Plichta
Investigator-in-charge

Date: 17/7/2020

Released by:

.....

John Mutorwa (MP)
MINISTER: MINISTRY OF WORKS AND TRANSPORT

Date: 20.7.2020

MINISTRY OF WORKS AND TRANSPORT
Office of the Minister
2020 -07- 20
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REPUBLIC OF NAMIBIA