MONITORING SYSTEM FOR AERODROME LIGHTING

Safety assessment October 23, 2023

Developed by ACSA-BACC Oct 2023

Safety Assessment Report

Contents

Barrier register

| Barrier	Barrier type	Effectiveness	Criticality	Accountable	Description
Lights Monitoring System at CT					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (S.E) All the lights are not visible from CT / (Br.) Lights Monitoring System at CT	A-HW Active hardware	-- Very Poor	Std Standard	ANS15 Air traffic controller	This barrier is not already impemented. Not considered in the latent risk
Daily lights funtioning inspection procedure					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (S.E) All the lights are not visible from CT / (Br.) Daily lights funtioning inspection procedure	C-HW Continuous hardware	- Poor	Std Standard	MET4 Operational staff	However the aerodrome operator has in practice a daily inpection procedure of the runwa,y this specific inspection is not implemented. In an amendment of the AOM we are including this task.
Pilots reporting					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (S.E) All the lights are not visible from CT / (Br.) Pilots reporting	BEH Behavioural	- Poor	Std Standard	AOC7 Pilot	The pilot not use to report lights condition. Coordination is in progress with ATC to request information.
BDCA Regulations and enforcement					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (S.E) All the lights are not visible from CT / (Br.) BDCA Regulations and enforcement	ST Socio technical	- Poor	Std Standard	NAA2 Government - CAA	Due the findings reports about this deviation the aerodrome operator is including a monitiring system in his investment plan

Barrier	Barrier type	Effectiveness	Criticality	Accountable	Description
Runway Strips and RESA					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (Cons.) Runway Excursion / (Br.) Runway Strips and RESA	C-HW Continuous hardware	+ Good	Std Standard	ADR1 Aerodrome personnel	However there are some obstacles en general terms the PGIA strips are in good condition.
Missed approach procedure					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (Cons.) Runway Excursion / (Br.) Missed approach procedure	BEH Behavioural	++ Very Good	Std Standard	AOC7 Pilot	Standard Operation Procedure as risk elimination barrier
RFF Service					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (Cons.) Runway Excursion / (Br.) RFF Service	ST Socio technical	+ Good	Std Standard	ANS14 ATS personnel	Emergency and CRF procedures
Emergency maintenance					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (Cons.) Traffic Delays / (Br.) Emergency maintenance	ST Socio technical	+ Good	Std Standard	ADR2 Maintenance staff	Resolution by emergency reactive maintenance
portable lights					
(Haz.) Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure / (Cons.) Traffic Delays	A-HW Active hardware	-- Very Poor		ADR2 Maintenance staff	PGIA does not have emergency portable lights

Barrier	Barrier type	Effectiveness	Criticality	Accountable	Description
/ (Br.) portable lights					

New BowTie Group

Hazard	Top event
Landing Operations at night or under reduced visibility contditions	ATS does not notice an aeronautcal lights failure
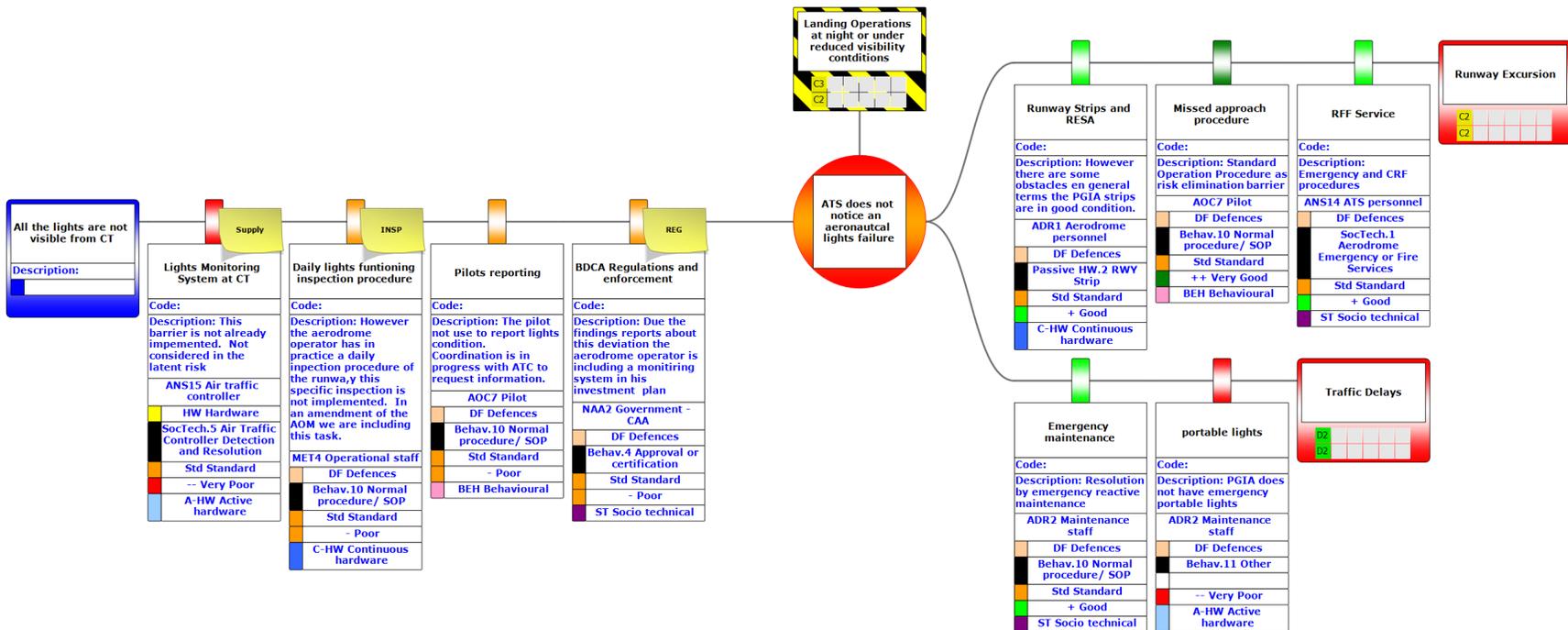
Threats and consequences

New BowTie Group

BowTie Group	Description
New BowTie Group	

Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure	
Safety Events	All the lights are not visible from CT
Consequences	Runway Excursion
	Traffic Delays

Barrier summaries

Lights Monitoring System at CT

Code	Name	Effectiveness
	Lights Monitoring System at CT	-- Very Poor

Daily lights funtioning inspection procedure

Code	Name	Effectiveness
	Daily lights funtioning inspection procedure	- Poor

Pilots reporting

Code	Name	Effectiveness
	Pilots reporting	- Poor

BDCA Regulations and enforcement

Code	Name	Effectiveness
	BDCA Regulations and enforcement	- Poor

Runway Strips and RESA

Code	Name	Effectiveness
	Runway Strips and RESA	+ Good

Missed approach procedure

Code	Name	Effectiveness
	Missed approach procedure	++ Very Good

RFF Service

Code	Name	Effectiveness
	RFF Service	+ Good

Emergency maintenance

Code	Name	Effectiveness
	Emergency maintenance	+ Good

portable lights

Code	Name	Effectiveness
	portable lights	-- Very Poor

All actions

Code	Name	Action party	Target
Supply	Supply 1- An exemption is requested for the installation of a light monitoring system within a period of 18 months. 2- Procedures for checking lights twice a day will be included in the aerodrome manual.	AOC1 Operator	01/07/2025
INSP	SOP 1- Procedures for checking lights twice a day will be included in the aerodrome manual. 2- Implementation of checking procedures	ERP4 Operations staff	15/11/2023
REG	REG	NAA2 Government - CAA	15/11/2023

Open actions

Code	Name	Action party	Target
Supply	Supply 1- An exemption is requested for the installation of a light monitoring system within a period of 18 months. 2- Procedures for checking lights twice a day will be included in the	AOC1 Operator	01/07/2025

Code	Name	Action party	Target
	aerodrome manual.		
INSP	SOP 1- Procedures for checking lights twice a day will be included in the aerodrome manual. 2- Implementation of checking procedures	ERP4 Operations staff	15/11/2023
REG	REG	NAA2 Government - CAA	15/11/2023

ICAO Format Risk Assessment

DATE: 23-10-2023	Risk Assessment No. 1	Belize Airport Concession Company Limited

HAZARD IDENTIFICATIONS AND RISK MANAGEMEN						
Description	Generic Hazard	Specific components of the Hazard	Consequences	Existing barriers	Additional Barriers	Accountable
Lack of aerodrome lights monitoring System according to BCAR14.705	Landing Operations at night or under reduced visibility conditions	ATS does not notice an aeronautical lights failure	1.Runway Excursions 2- Operations Delays	1-BDCA Regulations and enforcement 2- Pilots reporting 3- Runway Strips and RESA 4- Missed approach procedure 5- Emergency maintenance C3	1- Lights Monitoring System (medium term) 2- Daily lights functioning inspection procedure (Short term) C2	1. Aerodrome Operator 2- Maintenance Management 3- ATC 4-Pilots 5-BDCA Inspectorate Staff

Risk Assessment Matrix Used

ICAO (Doc. 9859 Fig. 2.13 and 2.15)

		A Catastrophic	B Hazardous	C Major	D Minor	E Negligible
5	Frequent	A5	B5	C5	D5	E5
4	Occasional	A4	B4	C4	D4	E4
3	Remote	A3	B3	C3	D3	E3
2	Improbable	A2	B2	C2	D2	E2
1	Extremely Improbable	A1	B1	C1	D1	E1

Categorías de riesgos:

- Acceptable
- Acceptable based on risk mitigation.
- Unacceptable under existing circumstances

Completed actions

In Progress

Activity overview

Activity list

Activity summaries

register

Landing Operations at night or under reduced visibility contditions / ATS does not notice an aeronautcal lights failure

All the lights are not visible from CT

Barriers & Escalation Factors	Criticality	Barrier type	Effectiveness	Accountable	Activities
Lights Monitoring System at CT	Std Standard	A-HW Active hardware	-- Very Poor	ANS15 Air traffic controller	
Daily lights funtioning inspection procedure	Std Standard	C-HW Continuous hardware	- Poor	MET4 Operational staff	
Pilots reporting	Std Standard	BEH Behavioural	- Poor	AOC7 Pilot	
BDCA Regulations and enforcement	Std Standard	ST Socio technical	- Poor	NAA2 Government - CAA	