



FINAL REPORT

Occurrence No: 129/15

Aircraft:

Airplane, De Havilland Canada DHC-8 Dash 8 (DH8D)

registration marks: SP-EQH

1 February, 2015

Warsaw Chopin Airport (EPWA)

This Report is a document presenting the position of the State Commission on Aircraft Accidents Investigation concerning circumstances of the air occurrence, its causes and safety recommendations. The Report was drawn up on the basis of information available on the date of its completion.

The investigation process can not be considered as finally closed. The investigation may be reopened if new information becomes available or new investigation techniques are applied, which may affect the wording related to the causes, circumstances and safety recommendations contained in the Report.

Investigations into air occurrences are carried out in accordance with the applicable international, European Union and domestic legal provisions for prevention purposes only.

The investigation was carried out without the need of application of the legal evidential procedure, applicable for proceedings of other authorities required to take action in connection with an air occurrence.

The Commission does not apportion blame or liability.

In connection with Article 5 paragraph 5 of the Regulation (EU) No 996/2010 of the European Parliament and of the Council on the investigation and prevention of accidents and incidents in civil aviation [...] and Article 134 of the Act – Aviation Law, the wording used in this Report may not be considered as an indication of the guilty or responsible for the occurrence.

For the above reasons, any form of use of this Report for any purpose other than air accidents and incidents prevention, can lead to wrong conclusions and interpretations.

This Report was drawn up in the Polish language. Other language versions may be drawn up for information purposes only.

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GENERAL INFORMATION

Occurrence reference number:	129/15			
Type of occurrence:	SERIOUS INCIDENT			
Date of occurrence:	1 February, 2015			
Place of occurrence:	Warsaw Chopin Airport (EPWA)			
Type and model of aircraft:	Airplane, De Havilland Canada DHC-8 Dash 8 (DH8D)			
Aircraft registration marks:	SPEQH			
Aircraft User/Operator:	Eurolot S.A.			
Aircraft Commander:	Lack of data			
Extent of damage to the aircraft:	None			
Aircraft owner:	Leasing			
Number of victims/Injuries:	<i>Fatal</i>	<i>Serious</i>	<i>Minor</i>	<i>None</i>
	<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>
Investigator-in-Charge:	Bogdan Fydrych			
Investigating Authorities:	Polish Air Navigation Services Agency "Airports" State Enterprise – EPWA management State Commission on Aircraft Accidents Investigation			
Composition of Investigating Team:	not appointed			
Document presenting the results:	SCAAI FINAL REPORT			
Recommendations:	NONE			
Recipient of recommendations:	NOT APPLICABLE			
Date of completion of the investigation:	27 July, 2015			

SYNOPSIS

An operator of the airport maintenance services (operator) confused thresholds (THR) of runways (RWY), which led to the presence of a vehicle on THR of an active runway during DH8D takeoff. EPWA TWR personnel noticed this fact only during the second entry of the operator in the area of Stopway (SWY)¹ behind RWY 11 THR and ordered to leave the aerodrome maneuvering area.

During the investigation the following cause of a **serious incident** has been determined: error of the vehicle operator which resulted in stopway incursion during airplane takeoff operation.

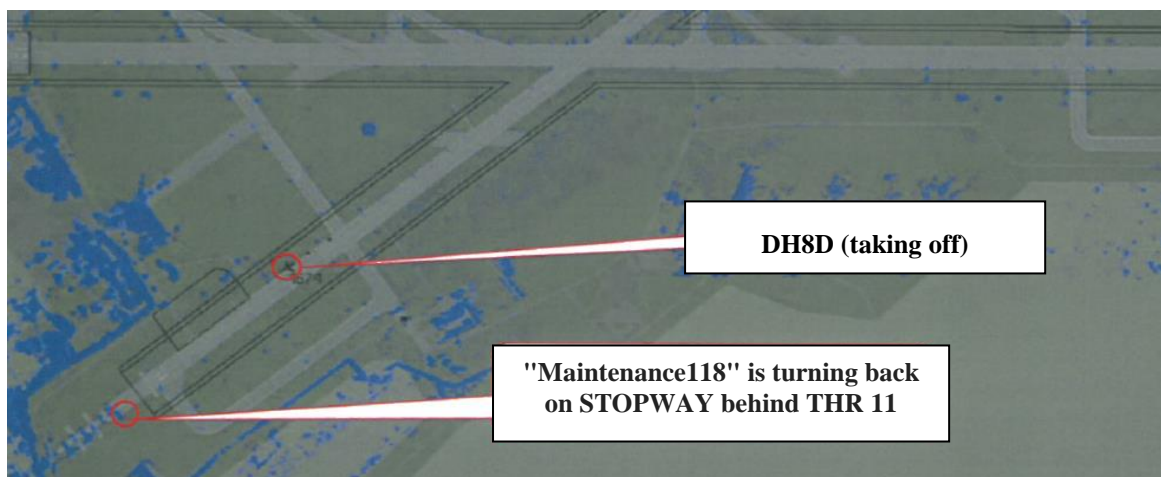
¹ **Stopway (SWY)** is a defined rectangular area on the ground at the end of take-off run prepared as a suitable area in which an aircraft can be stopped without its structural damage in the case of an abandoned takeoff. A stopway should have the same width as the runway with which it is associated and a good resistance characteristics when wet. Braking should not be worse than on the runway.

1. FACTUAL INFORMATION

1.1. History of the flight.

"Runway Incursion" without a need of taking action to avoid a collision occurred at EPWA aerodrome in the area of THR RWY 11.

An operator of "Maintenance 118" vehicle asked TWR for a clearance to enter RWY 15 THR to clean the area. The clearance was not granted due to an airplane landing on runway 33. After vacating RWY 33 by the landing airplane, the "Maintenance118" vehicle operator received the clearance to enter RWY 15 THR, but he did not confirm it. During DH8D takeoff run on RWY 29, TWR personnel noticed a vehicle moving in the area of SWY behind for RWY11 THR. When called by an assistant air traffic controller, "Maintenance 118" operator stated that he was on the RWY 15 THR. Only after the suggestion of assistant air traffic controller the operator confirmed that he was on the RWY 11 THR.



An operator of the airport maintenance services (operator) confused thresholds (THR) of runways (RWY), which led to the presence of a vehicle on THR of an active runway during DH8D takeoff. EPWA TWR personnel noticed this fact only during the second entry of the operator in the area of Stopway (SWY) behind RWY 11 THR and ordered to leave the aerodrome maneuvering area.

1.2. Injuries to persons.

None.

1.3. Damage to aircraft.

None.

1.4. Other damage.

None.

1.5. Personnel information.

TWR Controller

On the day of the occurrence he had valid ADI rating and valid Aero-Medical Certificate. In the period 3-7 June 2013 he attended a refresher course on emergency situations.

Vehicle operator

On the day of the occurrence the vehicle operator had the required ratings.

1.6. Aircraft information.

De Havilland Canada DHC-8 Dash airplane, SN: 4424, year of manufacture: 2012.

The aircraft possessed Certificate of Registration and Certificate of Airworthiness.

1.7. Meteorological information.

Meteorological conditions had no impact on the occurrence.

1.8. Aids to navigation.

Not applicable.

1.9. Communications.

During the occurrence the continuous radio communication with the operator was maintained.

1.10. Aerodrome information.

Warsaw Chopin Airport (EPWA) has two intersecting runways and many taxiways with numerous intersections and several aprons. It is a complex aerodrome.

The aerodrome does not have A-SMGCS (Advanced Surface Movement Guidance and Control System) or any other credible, authorized system monitoring traffic of aircraft and airport service vehicles on the maneuvering area. System monitoring traffic of aircraft and airport service vehicles on the maneuvering area are modular systems consisting of various functions to support the safe, orderly and efficient movement of aircraft and vehicles at the airports in various circumstances, depending among others on:

- traffic volume;
- complexity of the airport;
- required performance in different meteorological conditions;
- planned air operations.

The systems of this kind support the air traffic controllers through providing better situational awareness and are an important element in the safety assurance during operations on the aerodrome maneuvering area.

1.11. Flight recorders.

The flight recorders were not read out.

1.12. Wreckage and impact information.

Not applicable.

1.13. Medical and pathological information.

Not applicable.

1.14. Fire.

Fire did not occur.

1.15. Survival aspects.

Not applicable.

1.16. Tests and research.

Standard methods were applied for analysis of the documentation related to the occurrence.

1.17. Organizational and management information.

On 3 February 2015 SCAAI was notified about the occurrence by the Polish Air Navigation Services Agency. Initially the occurrence was categorized as an incident to be investigated under SCAAI supervision by "Airports" State Enterprise (EPWA management) and Polish Air Navigation Services Agency. On 7 July 2015, after analysis of the Final Reports and radio and radar recordings SCAAI changed the occurrence category into "Serious Incident".

1.18. Additional information.

In accordance with the recommendations of *Annex 13 to the Convention on International Civil Aviation* and *Regulation of the European Parliament and of the Council* SCAAI notified about the occurrence and forwarded the Final Report to: ICAO, EASA, European Commission, the State of Manufacture and the State of Operator of the involved airplane.

1.19. Useful or effective investigation techniques.

Not applied.

2. ANALYSIS

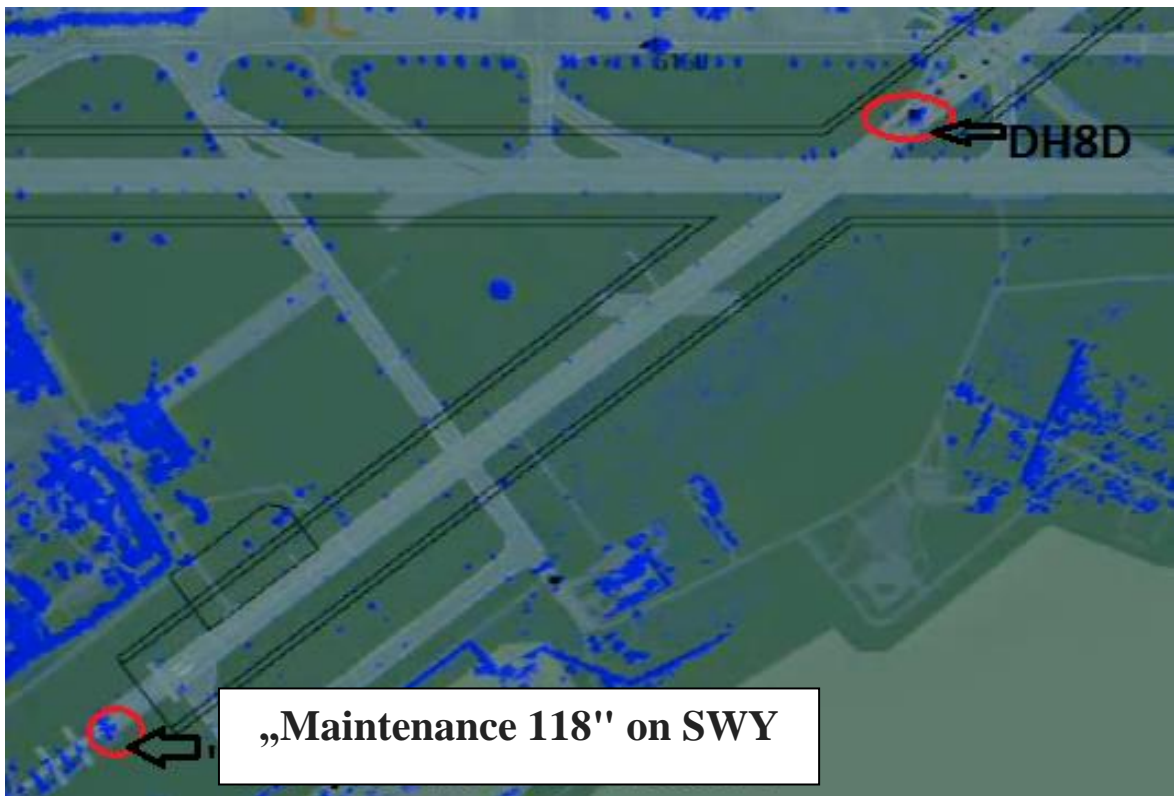
2.1. Occurrence analysis.

At the time of issuing the takeoff clearance for the DH8D crew the TWR Controller was not aware that in fact the "Maintenance 118" vehicle was located in the area of RWY 11 THR instead of RWY 15 THR as declared by the vehicle operator. As a result, the DH8D take off from RWY 29 took place during the presence of "Maintenance 118" in the area of RWY 11 THR.

Based on analysis of the airport radar imaging (from 13:40:40 to 13:41:41 hrs UTC) it was found that indefinite radar echo was moving from so called fire road in the direction of the RWY 11 THR.



Taking into account the recorded radio communication between the TWR assistant Controller and the "Maintenance 118" operator, and the airport radar recording it can be confirmed that the "Maintenance 118" vehicle reached the RWY 11 THR SWY when DH8D was approaching the intersection of runways during its takeoff.



<i>SPEAKER</i>	<i>Time (UTC)</i>	<i>CONTENT</i>
MAINTENANCE 118	13:29:00	TOWER MAINTENANCE 118
TWR	13:29:10	MAINTENANCE 118 TOWER, listening
MAINTENANCE 118	13:29:15	Tower, from "fire road" to threshold 15, I would like to clean there
TWR	13:29:27	MAINTENANCE 118 TOWER, cleared to enter threshold 15
MAINTENANCE 118	13:29:30	TOWER clears to enter 15
MAINTENANCE 118	13:31:39	TOWER MAINTENANCE 118, I vacated threshold 15 via fire road, thank you
TWR	13:31:46	MAINTENANCE 118 TOWER, I received, thank you
MAINTENANCE 118	13:36:14	TOWER MAINTENANCE 118
TWR	13:36:18	MAINTENANCE 118 TOWER
MAINTENANCE 118	13:36:22	TOWER MAINTENANCE 118, from fire road to threshold 15 to clean there
TWR	13:36:31	MAINTENANCE 118 TOWER, forbid, wait
MAINTENANCE 118	13:36:35	TOWER forbids, I wait
TWR	13:40:19	MAINTENANCE 118 TOWER, cleared to enter threshold 15
MAINTENANCE 118	13:40:25	TOWER clears to enter threshold 15
TWR	13:40:47	MAINTENANCE 118, where are you now?
TWR	13:41:00	MAINTENANCE 118 TOWER,
MAINTENANCE 118	13:41:05	MAINTENANCE 118
TWR	13:41:08	Where are you now exactly?
MAINTENANCE 118	13:41:15	I am turning back on a threshold
TWR	13:41:20	On which threshold, MAINTENANCE 118?
MAINTENANCE 118	13:41:25	On threshold 15
TWR	13:41:29	Sure? Because I can see a vehicle near to the threshold 11...
MAINTENANCE 118	13:41:25	Oh, excuse threshold 11
TWR	13:41:48	MAINTENANCE 118, if, if you confuse, confuse thresholds, go to safe immediately
MAINTENANCE 118	13:41:56	Yes, I understood
MAINTENANCE 118	13:42:01	And Tower, I vacated threshold 15 via the fire road

TWR	13:42:08	11 not 15
MAINTENANCE 118	13:42:13	Excuse 15, 11

According to the applicable regulations, the place where "Maintenance 118" entered belongs to the RWY11 where the aircraft can come to rest without its structural damage in the case of an abandoned takeoff. As a result of error of "Maintenance 118" vehicle operator the "Runway Incursion" incident occurred. This kind of errors on the aerodrome maneuvering area may lead to serious consequences. The "Maintenance 118" vehicle operator obviously was not aware of the aerodrome topography and maintained improper correspondence. As a result of the above the TWR personnel forbade the vehicle operator to continue his action in a sensitive operational area of the aerodrome.

2.2. Evacuation action

Not applicable.

3. CONCLUSIONS.

3.1. Commission findings.

1. The Controller possessed the required ratings to perform flight duties.
2. The vehicle operator possessed the required ratings to perform his duties.
3. The airplane possessed the required documents to perform aviation operations.
4. In the course of the occurrence the two-way communication between TWR and the vehicle operator was maintained.
5. The aerodrome does not have A-SMGCS (Advanced Surface Movement Guidance and Control System) or any other credible, authorized system monitoring traffic of aircraft and airport service vehicles on the maneuvering area.

3.2. Cause of the occurrence:

Error of the vehicle operator which resulted in stopway incursion during an airplane takeoff operation.

3.3. Preventive actions taken by the investigating entities:

Air Navigation Service Provider

The occurrence was discussed and analyzed by Runway Safety Team (RST), which has formulated the following safety recommendations:

1. Markings of entrances to runways via technical and emergency access roads by additional plates identifying their designations.
2. Implementation of A-SMGCS or any other credible, authorized system monitoring traffic of aircraft and airport service vehicles on the EPWA maneuvering area.

Commission comment:

With regard to the point 3.3. – 2 the Commission in its Final Report on occurrence No: 801/14 concluded on 5 June 2015 formulated the safety recommendation concerning the implementation of A-SMGCS:

“In order to improve the level of safety of aviation operations at EPWA, due to its complex design the and the runway incursions which have taken place on the aerodrome, the Commission recommends to implement A-SMGCS as soon as possible”.

On 10 July 2015, the Commission received a reply to the above-cited recommendation: *“... intensive design works are in progress, which should allow to develop specification of A-SMGCS until the end of 2015. Project Team and Steering Committee for the PR12 A-SMGCS project have been established. Taking into account the nature of the project all works will be carried out in close coordination with “Airports” State Enterprise.*

The future system will include among others: 2 SMR radars, multilateral system of S Mode, approach radar interfaces, interface with the flight plans system and interface with aerodrome lights management system. It is planned to implement the A-SMGCS Level 2, which will have, among others, a function detecting defined alarms within the framework of Safety Nets, which will help prevent situations similar to the mentioned occurrence and contribute to reducing the controllers’ work load.

Completion of the works and the implementation of A-SMGCS for Chopin Airport is planned for the year of 2018 ”.

3. Continuation of practical checks of the knowledge of maintenance service operators with short experience on maneuvering area topography through instructional passages on preset routes observed by more experienced drivers, including at night.
4. Reminding users of the airport network about the absolute need to apply principles of radio communication in accordance with the INOP-IPSR, including the use of proper phraseology.
5. Development and organization by the RST members of short training with examples of “Runway Incursion” at the EPWA aerodrome for all shifts of the airport maintenance services.
6. Forward the Final Report and the collected materials to EPWA aerodrome management in order to carry out its own investigation into the occurrence to determine detailed causes of the occurrence and implement appropriate safety recommendations, which would eliminate the identified hazard.

7. Forward the Final Report and the collected materials to the Control Department of Warsaw Airport in order to:

- remind controllers the INOP provisions which oblige a controller to complete the "Runway Incursion" form if such an occurrence has taken place;
- inform the involved controller about concluding the investigation and acquaint him with the findings of the investigation.

8. Forward the Final Report and the collected materials to the ATS Personnel Training Center to include them in the database of investigated occurrences to be used by the instructors during basic and refresher training for air traffic controllers.

4. SAFETY RECOMMENDATIONS.

The Commission has not formulated any safety recommendations.

THE END

SCAAI Investigator-in-Charge:

.....*signature on the original Report*.....

(Stamp and signature of the Investigator-in-Charge)