Safety culture in transport accident investigations

Heidi Rudshaug, senior advisor
Advisory staff, Accident investigation board Norway

hru@aibn.no

sht Statens Havarikommisjon for Transport

What is the benefit of investigating safety culture vs organizational safety in transport accident investigations?

introduction

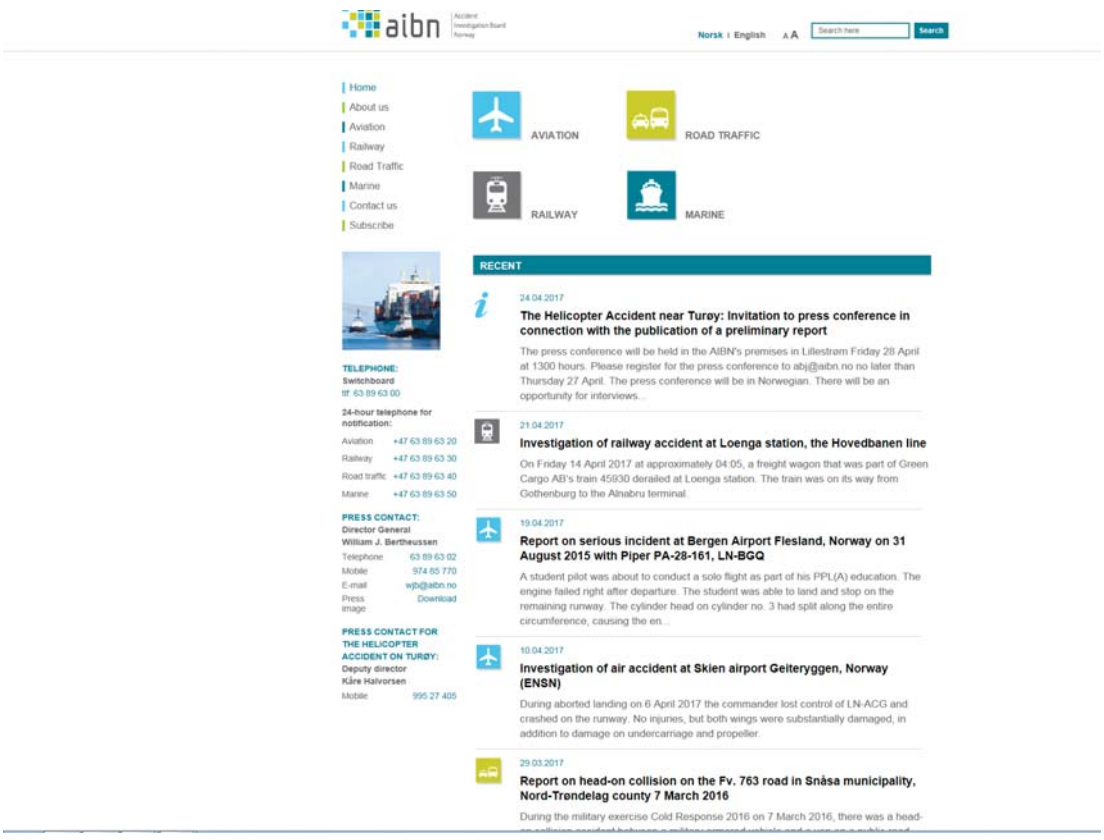
- Presentation
- Investigating safety culture or organizational safety;
  - When, why and how
  - Investigations
- Further expectations

personal

- Background (education, cultural)
- Motivation
- Labour Inspection
- QA/HSE

Statens havarikommisjon for transport

Accident Investigation Board Norway



sht Statens Havarikommisjon for Transport

05/2017 Heidi Rudshaug

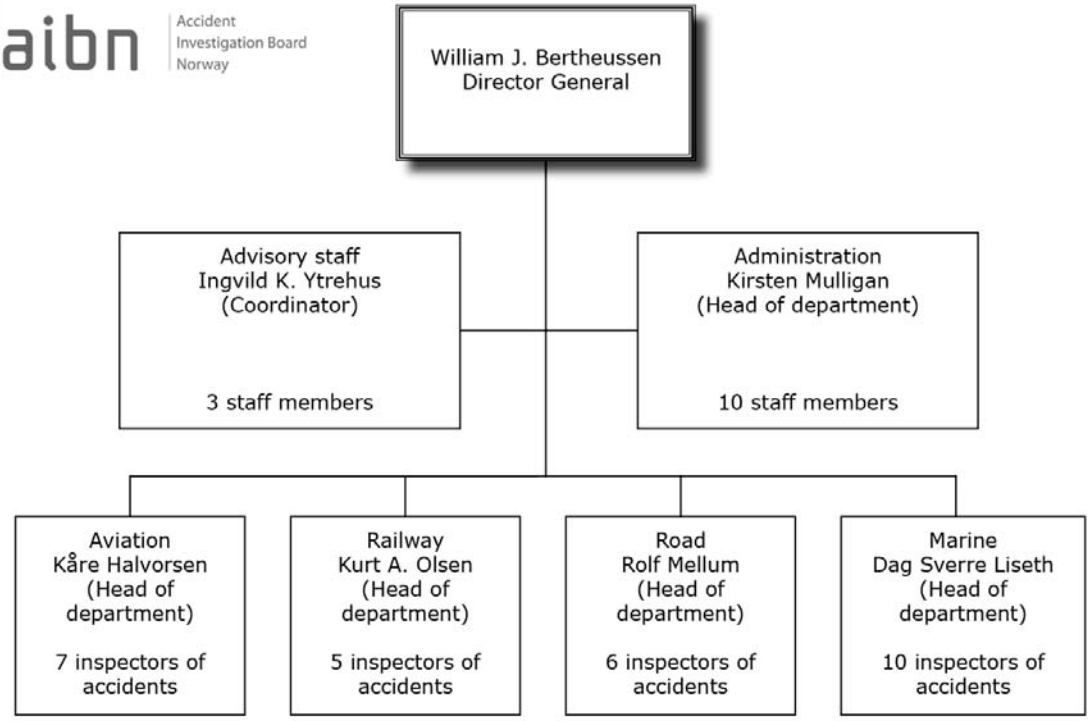
- A public body of inquiry – permanent and indipendent
- Investigations to clarify the sequence of events and factors which are assumed to be of importance for the prevention of transport accidents
- The AIBN shall not apportion blame or liability

Values:
competent, innovative, credible and compassionate

1989 - aviation accidents
2003 - railway accidents
2005 - road traffic accidents
2008 - marine accidents

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug

aibn Accident Investigation Board Norway



Facts from annual report 2016

- About 39 each:
  - Published reports
  - Current investigations
  - Safety recommandations

investigations

On-site findings / verifications

Tecnical vs. operational

Interviews –

Organisation knowledge

Documentation and verifications

terms and thoughts – safety culture and organzational safety

"The product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization’s health and safety management“

"Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures."

“The way we typically do things around here“

when investigate safety culture?

- Size of accident (major accidents, impact of organisation)
- Resources
- Norwegian org./company preferred
- Scope and safety problems claims need of investigating org. culture / safety culture

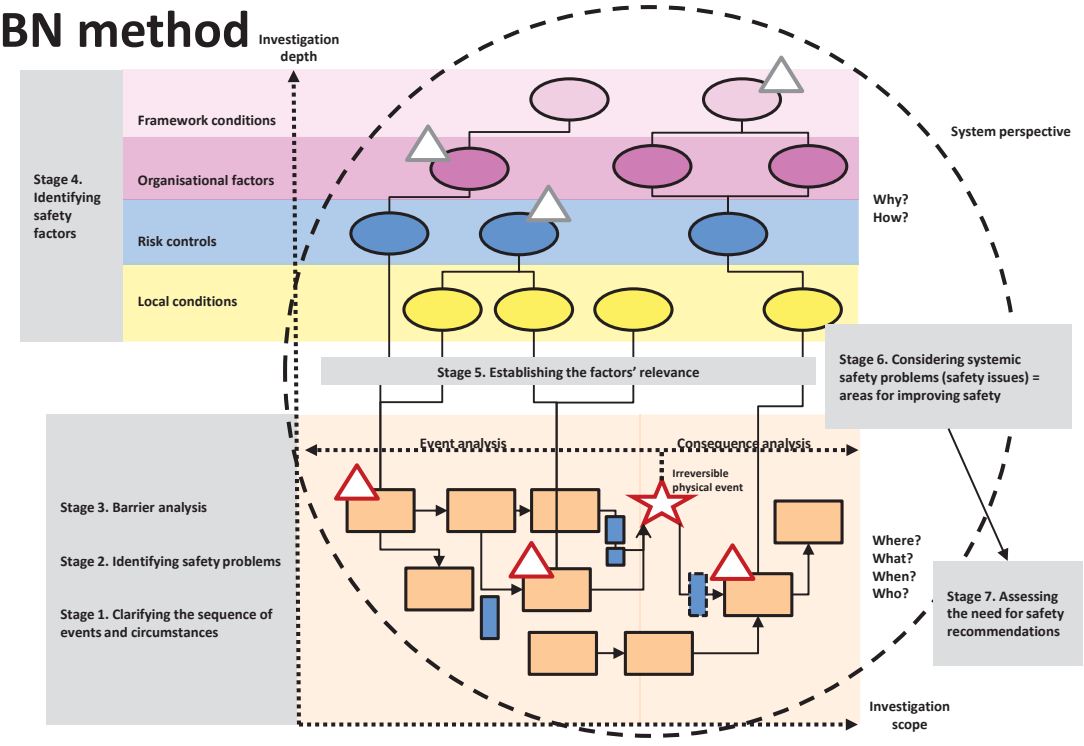
The AIBN method – key points

- Structured analysis process.
- 7 stages - adapted to the scope and complexity of the investigation.
- AIBNs mandate:

  what (stages 1-3) – why (stages 4-5) – improving safety (stages 6-7)

- The circle represents: the iterative process and the system perspective
- The initial safety problems - potential indicators of safety issues.

The AIBN method



Safety culture as subject

Aviation safety in restructuring processes

Nordlys

Alnabru

Elverum

aviation safety in restructuring processes – July 2005

Report required from Departments of Communication on flight safety during restructuring in several Norwegian aviation organizations

- High level of safety, few accidents/incidents
- Safety culture not used as a factor in describing aviation safety
- 15 safety recommendations to authorities and aviation companies

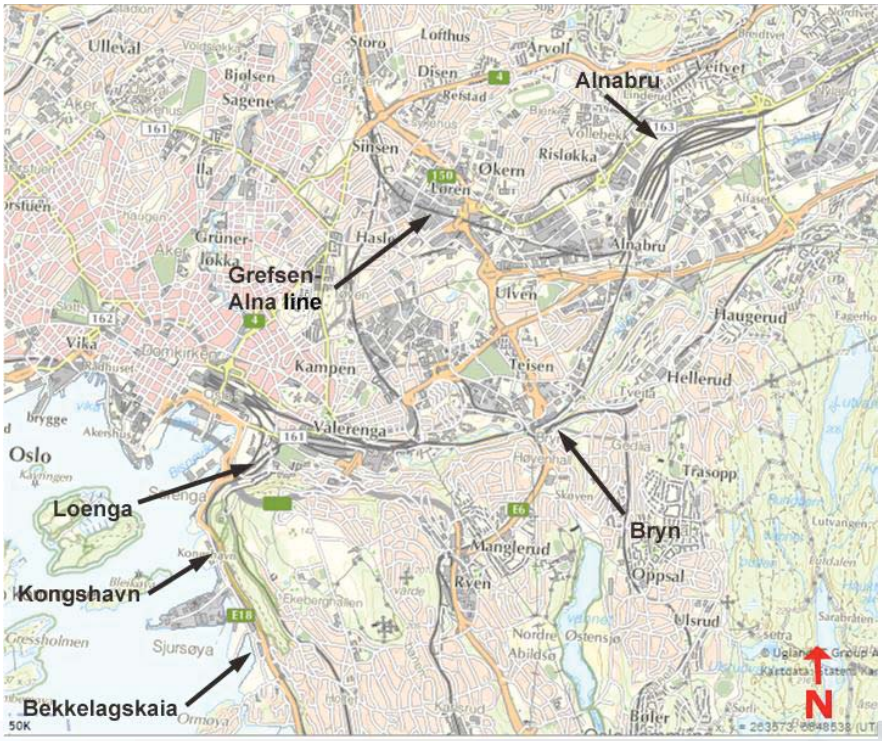
accident sailplane Elverum 8 July 1998 report 16/2011

- Aeroclub – lifting operation
- Safety culture challenges

Alnabru/Sjursøya 24 March 2010

Foto: Scanpix

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug



4 main safety problems

1. The train was left in the A-area
2. Misunderstanding between train expeditor and team leader
3. Two operative procedures were not followed
4. No physical barriers

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug

how and why the safety problems occured

Safety framework

|

Management system

|

Work practice

information

- Interviews – 40 persons and their organizations
- Verification of documents
- Verification infrastructure, traffic management and work place
- DNV – report on safety culture – Jernbaneverket 2010

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug

contributing causal factors

- Practical drift – informal practice developed over a long time
- Lack of destructuring / priority
- Communication across cultural boarders
- Inactive safety procedures
- Unstructured critical information
- Safety management fractured

Safety recommendations

LN-OLH 30 mars 2006 Rogaland

Nordlys 15 Sept 2011

Statens Havarikommisjon for Transport

The context

- «Coastal express» since 1893
- Passenger and cargo
- 11 vessels on 11-days round-trips Bergen-Kirkenes
- 34 ports of call each way, every day year round
- ~24000 port calls per year

- MS «Nordlys»
  - Built in Germany in 1994
  - Max 622 pax

Statens Havarikommisjon for Transport

The accident in short

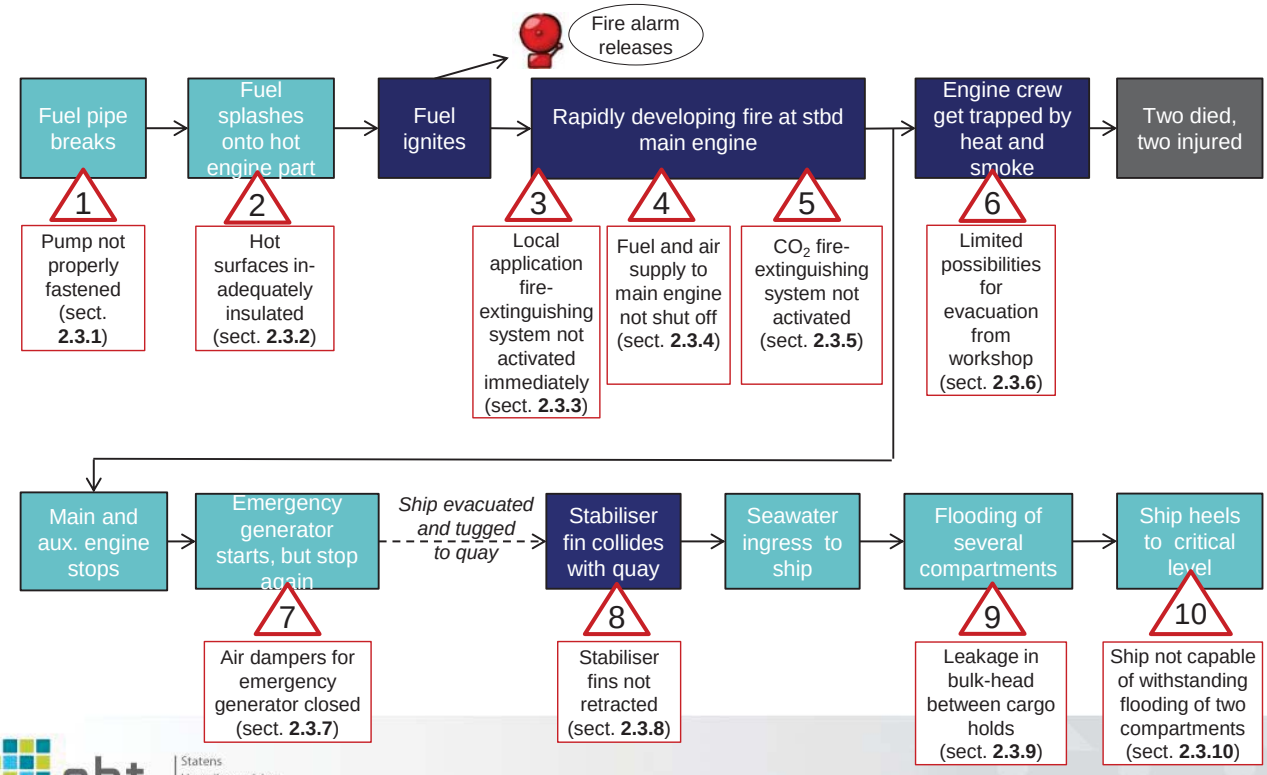
Fire — 15.09.2011 09:12

Listing — 15.09.2011 13:28

17.09.2011 @ 09:00

sht Statens Havarikommisjon for Transport

Course of events



sht Statens Havarikommisjon for Transport

The investigation process

- Extremely complex case
  - Fire in engine room
  - Loss of emergency power
  - Water ingress and near capsizing
  - Other topics:
    - List of alarms
    - Safety management and training
    - Maintenance procedures and job descriptions
    - Regulations and surveys
- Huge potential – What if…?

Safety recommendations

Organizational safety

Safety issues vs investigating safety culture

Systemic safety problems in a higher level (risk control, organizational and framwork conditions)

AIBN reports – impact safety culture

A majority of AIBN reports do not make use of spesific safety culture investigations –

Still an impact on improving safety culture in transport organizations?

Case – organizational

Intro

Namsos
Dombås
Isabella
Sola

DHC-6-300 Twin Otter, LN- BNM

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug

Namsos – 27 oct 1993

Widerøe Twin Otter aircraft crashed before planned landing on Namsos airport - 6 people died in the accident

Safety culture not mentioned in the report

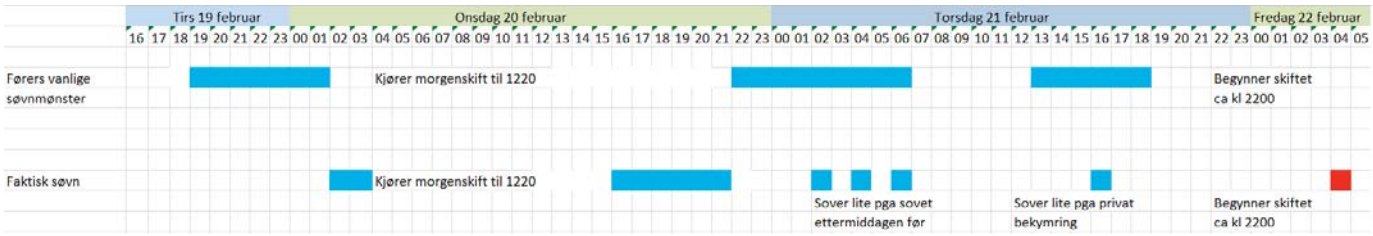
Systemical investigation of the organization

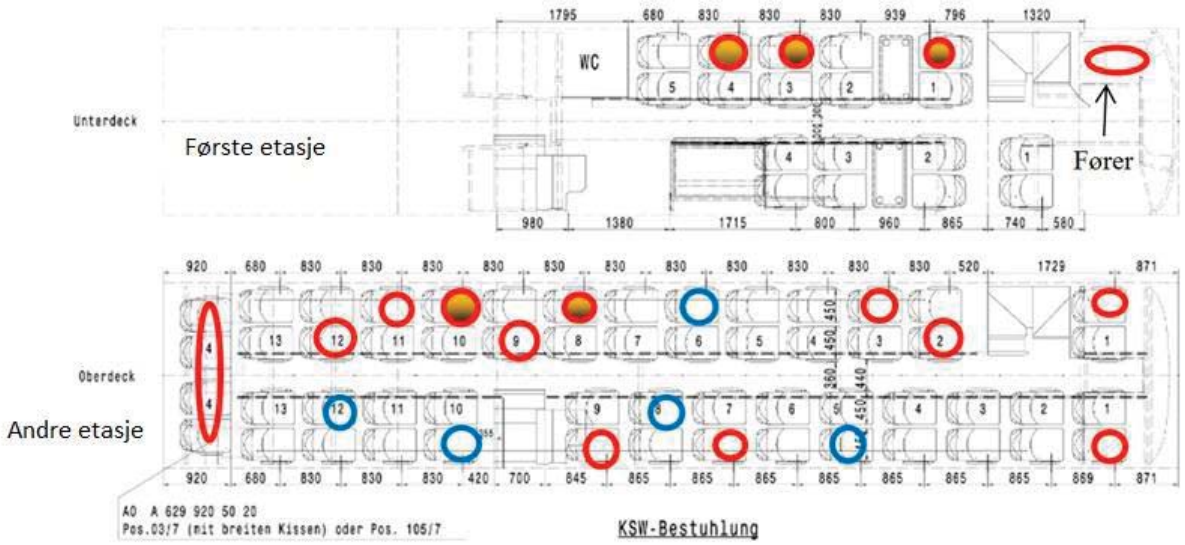
Widerøe fullfilled format safety systems in large

- Informal practice explained why safety systems failed

21 safety recommendations issued to Widerøe

Dombås – bus accident 22 Feb 2013



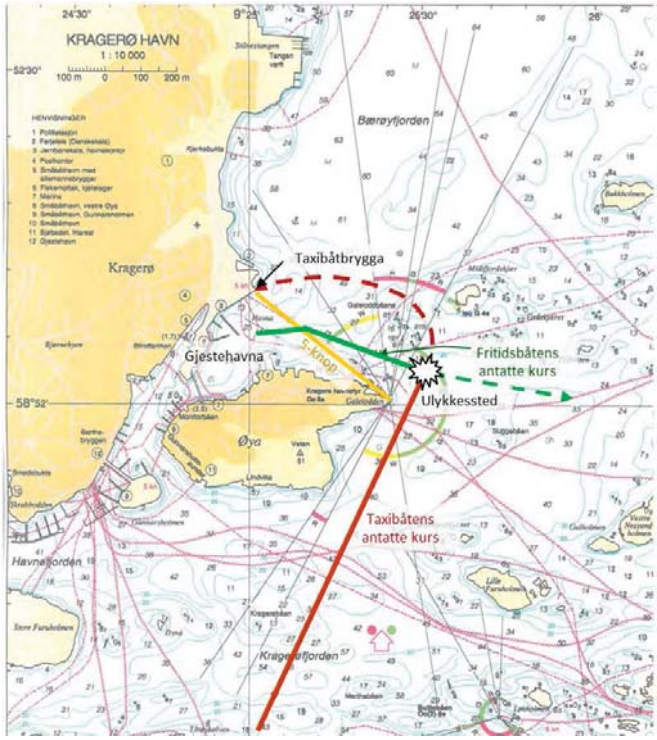


Passasjer brukte ikke bilbelte

Passasjer brukte ikke bilbelte og ble skadd

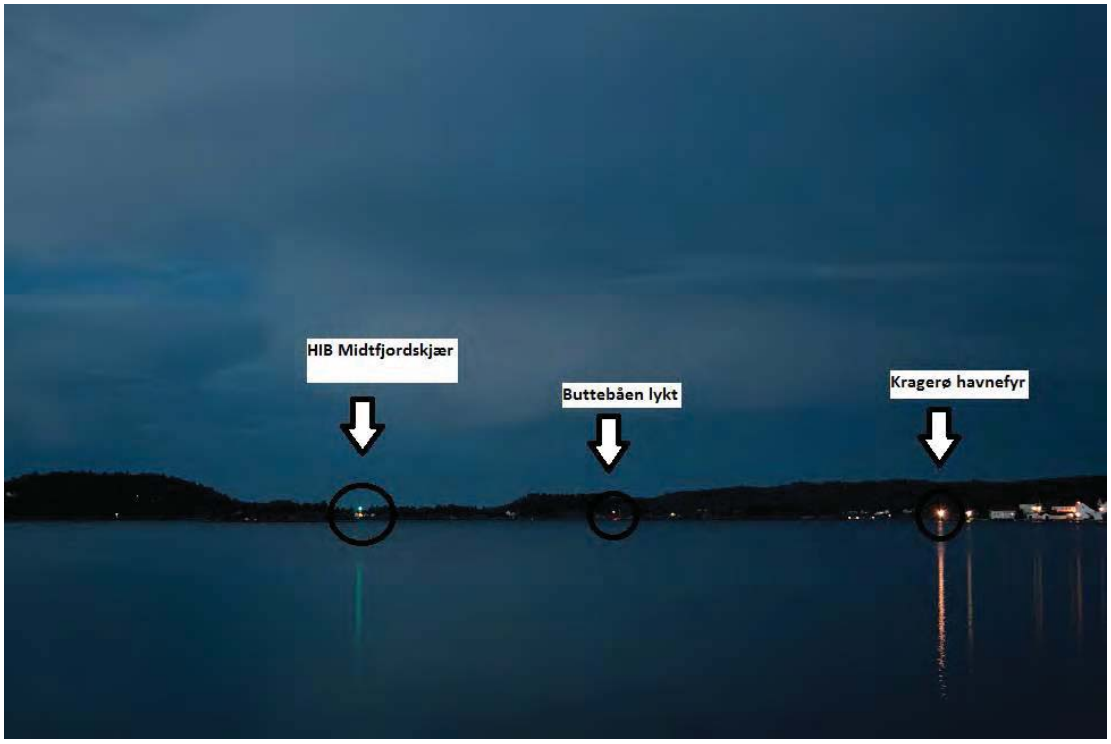
Passasjer brukte bilbelte

Isabella

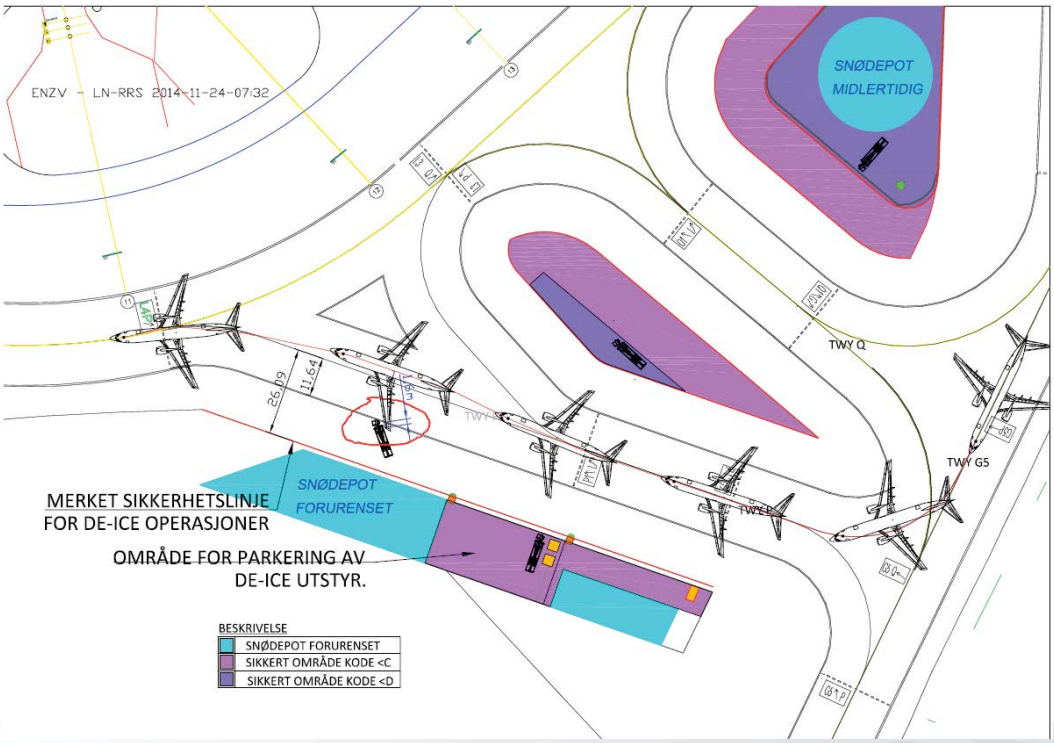


Isabella

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug



Aviation accident – Sola, Stavanger – 24 Nov 2014



- SAS flight 4009 a Boeing 737-800 was after landing at Stavanger airport Sola, Norway (ENZV), cleared by ground air traffic controller to taxi towards the terminal via taxiway «P».

sht Statens Havarikommisjon for Transport
05/2017 Heidi Rudshaug

conclutions

Investigation methology:

Safety culture:

Organizational investigations: