



# INFORMATION FLOWING BUT:

INFORMATION KNOWN, BUT DID NOT REACH THE RIGHT PEOPLE



## R12W0182

On 9 August 2012, at about 1835 Central Standard Time, Canadian Pacific Railway freight train 205-09 was proceeding westward at 53 mph when it struck a southbound camper van at a passive public crossing equipped with crossbucks, located at Mile 128.90 on the Broadview Subdivision, near Broadview, Saskatchewan. The camper van was destroyed and 4 of the 6 vehicle occupants were fatally injured.



## ANALYSIS

TC conducted a detailed inspection of the crossing a year before the accident. Although the sightlines were compromised and did not meet Guideline G4-A requirements. Transport Canada determined that the sightlines were adequate and did not require any mitigation and it did not notify the railway. Following the accident, brush-cutting was required at at least 13 crossings on the Broadview subdivision with obstructed sightlines.

## RISK FINDINGS:

If sightline maintenance activities are reactive, sightline obstructions may not be addressed until after they have compromised a driver's ability to assess whether or not a train is approaching, which increases the risk of an accident.



## A14Q0011

On 23 January 2014, the privately operated Piper PA-46-350P Malibu Mirage departed Mirabel Airport, Quebec, at 0848 Eastern Standard Time, for Alma, Quebec, with 1 pilot and 1 passenger on board. The flight was uneventful, and the aircraft landed at 1002 on Runway 31. As the nose wheel contacted the runway, directional control was lost. The aircraft veered left and departed the runway surface 400 feet after the loss of control. The aircraft came to a stop about 100 feet from the runway edge in a compacted snow bank, approximately 2200 feet from the threshold of Runway 31. There were no injuries.



## ANALYSIS

Inspection criteria for this type of aircraft were modified after the accident. However, the requirements in the Special Air Worthiness Bulletin are not mandatory.

## RISK FINDINGS:

If the requirements prescribed in Service Bulletin 1103E are not made mandatory for operators in Canada, then there is a continued risk that fatigue cracks may not be discovered in a timely manner to prevent a similar occurrence.

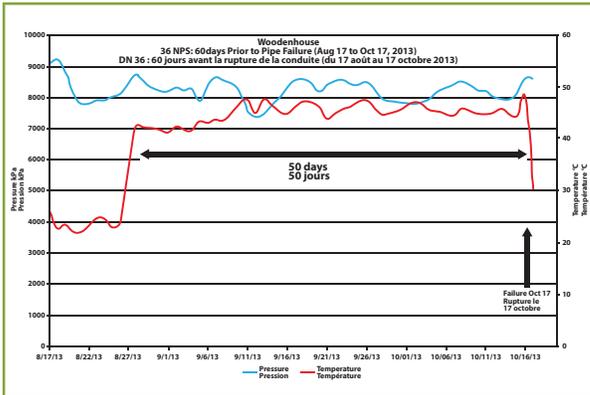


# INFORMATION FLOWING BUT: DESIGN PARAMETERS NOT RECOGNIZED AS POTENTIALLY PROBLEMATIC



## P13H0107

At about 0235 Mountain Standard Time on 17 October 2013, a pipeline rupture occurred on TransCanada PipeLines Limited's (NOVA Gas Transmission Ltd.) 914 mm diameter North Central Corridor Loop Buffalo Creek West Section pipeline, located southwest of Fort McMurray, Alberta. A crater was created and 5 fragments of pipe were ejected up to approximately 130 m from the rupture site. An estimated 16.5 million cubic metres of natural gas was released. There was no fire, no injuries and no evacuation.



## FINDINGS

**AS TO CAUSES AND CONTRIBUTING FACTORS:** The use of the incorrect design parameter and the non-conservative temperature decay model were not identified by TransCanada PipeLines Limited's quality assurance process.

**AS TO RISK:** If the stress analysis conducted during pipeline design does not fully address the potential operating envelope (i.e., pressure and temperature), the pipeline or its components may not be sufficiently robust, increasing the risk of in-service ruptures.

**AS TO RISK:** If a pipeline company's integrity management program does not identify and mitigate the threat of improper design, there is an increased risk of pipeline rupture when operating near the upper limits of the pipeline.



## A14C0112

On 04 August 2014, the ground controller at Winnipeg Richardson International Airport, cleared WestJet Encore Ltd. flight WEN3112, to taxi for departure via Runway 31 and to hold short of Runway 36. The WEN3112 crew acknowledged the clearance to hold short of Runway 36. When the tower controller observed that WEN3112 had entered the Runway 36 protected area at the intersection with Runway 31 without a clearance, he then instructed another flight, which was on short final for Runway 36, to go around.

## FINDINGS

**AS TO CAUSES AND CONTRIBUTING FACTORS:** The orientation of the runway holding position signs was optimized for traffic on Runway 31, which likely contributed to the pilots not identifying the hold-short position.

The fact that the left runway guard light (RGL) was aimed 15 degrees away from Runway 31, the orientation of the right RGL relative to the aircraft's position, and the reduced RGL intensity setting likely contributed to the pilots not identifying the hold-short position.





# INFORMATION FLOWING BUT:

WEAK SAFETY PROCESSES DID NOT RESULT IN RISK MITIGATION



## M12C0058

On 11 October 2012, at approximately 1340 Eastern Daylight Time, the passenger vessel Jiimaan grounded while approaching the ferry terminal in Kingsville, Ontario. The 34 passengers and crew remained on board until the vessel was refloated at approximately 1308 the next day, after which time the Jiimaan was escorted to the port of Leamington, Ontario. There was no pollution, damage, or injuries.



## ANALYSIS

This was a company who was trying to do the right things (good safety culture). They had voluntarily implemented an SMS which was audited by a third party. However, the risk assessment processes included in that SMS were weak and did not help them effectively mitigate the risk they had identified early in the season of greater than normal silting in the channel.

## RISK FINDINGS:

The absence of a risk assessment process within the company's safety management system (SMS) resulted in the risks, associated with deviating from the charted channel in response to the silting at the port of Kingsville, not being identified and mitigated.



## A14Q0060

On 13 May 2014, the Héli-Boréal inc. Eurocopter AS 350 BA helicopter was on a flight to inspect power-line vegetation encroachment with a pilot and an observer on board. While completing a right turn in a valley, the pilot noticed a 315-kilovolt power transmission line crossing perpendicular to the direction of flight. The right turn was increased to avoid the transmission line, but one of the helicopter's main rotor blades struck the lower wire. The resulting damage to the rotor blade caused severe vibrations, which made it difficult to control the helicopter, which came to rest on its left side in the snow. Both occupants sustained serious injuries.



## ANALYSIS

In many flight operations, whether in commercial or general aviation, charts are relied upon to assist in identifying potential hazards and navigating accurately. The accuracy of the information provided in the visual flight rules navigational charts must allow a pilot to safely perform a flight. NAV CANADA is responsible to provide accurate aeronautical data to the user or pilot. Many electronic digital navigation system manufacturers use NAV CANADA's information for their databases. Any erroneous or missing information is therefore propagated throughout the aviation community. The existing request process for obstacle data showed mixed results.

## RISK FINDINGS:

If the data collection process to update aeronautical information products does not function effectively, there is a risk that these products may not contain the information required to ensure the safety of flight.



# INFORMATION NOT FLOWING DUE TO:

RISKS ACCEPTED AS PART OF THE JOB // RISK ADAPTATION HAS OCCURRED



## M14P0110

On 06 June 2014, at approximately 1045 Pacific Daylight Time, a crew member on the fishing vessel Diane Louise went overboard while setting prawn traps 9 nautical miles west of Calvert Island, British Columbia. Although the crew member was recovered within minutes, he was unresponsive upon recovery.

### RISK FINDINGS:

If fishermen do not conduct comprehensive risk assessments, despite being aware of many workplace hazards and risks, unsafe work practices may persist or develop.

If fishermen continue to not wear PFDs or lifejackets while working on deck, despite the industry awareness initiatives and regulations requiring their use, there is an increased risk of drowning when overboard.



## P12H0103

On 23 June 2012, at approximately 1200 Mountain Standard Time, an ignition and fire occurred in a valve-enclosure structure at Spectra Energy Transmission Compressor Station N4, located approximately 160 km northwest of Fort St. John, British Columbia. Two maintenance employees sustained burn injuries when sweet natural gas that had been leaking from a station valve ignited. The 2 employees were performing annual inspection work on motor-operated valves.

### RISK FINDINGS:

When risk adaptation occurs and perceived risk is diminished, cues to potentially hazardous situations (e.g., the presence of leaking gas) will be overlooked, increasing the potential for workplace accidents.





# INFORMATION NOT FLOWING DUE TO:

SAFETY MANAGEMENT PROCESSES DID NOT EXIST, OR EXISTED ONLY ON PAPER, OR WERE NOT USED, ALLOWING ISSUES TO GO UNADDRESSED



## A13A0075

On 03 July 2013, at about 1415 Atlantic Daylight Time, the Government of Newfoundland and Labrador Air Services Division Bombardier CL-415 amphibious aircraft, operating as Tanker 286, departed Wabush, Newfoundland and Labrador, to fight a nearby forest fire. Shortly after departure, Tanker 286 touched down on Moosehead Lake to scoop a load of water. About 40 seconds later, the captain initiated a left-hand turn and almost immediately lost control of the aircraft. The aircraft water-looped and came to rest upright but partially submerged. The flight crew exited the aircraft and remained on the top of the wing until rescued by boat.



### ANALYSIS

The occurrence resulted from a loss of control following a scooping run in which too much water was scooped resulting in the aircraft being overweight. The auto probes system was not set prior to the scooping run. Water cooler talk among the pilots prior to the occurrence included the fact that this item was not on the checklist and had led to similar overweight situations. This issue was not raised through any formal process partly because these processes did not exist.

### RISK FINDINGS:

If companies do not have procedures for recording overweight take-offs and flight crews do not report them, then the overall condition of the aircraft's structures will not be accurately known, which could jeopardize the safety of flight. If organizations do not use formal and documented processes to manage operational risks, there is an increased risk that hazards will not be identified and mitigated.



## M14P0023

On 11 February 2014, at approximately 0305 Pacific Standard Time, the tug Jose Narvaez, while towing the empty barge TCT 8000 down the South Arm Fraser River, British Columbia, sustained a loss of propulsion due to a main engine seizure. The tug and barge were towed back to the Lafarge marine dock and secured. The main engine was deemed a constructive loss; there were no injuries or pollution.



### ANALYSIS

The Jose Narvaez was not required to have an SMS in place. Deficiencies in operations included the following:

- On-board documentation to support crew members on aspects such as training, familiarization, drills, and maintenance, was extremely limited. For example, the engine manufacturer maintenance documentation was not on board the vessel.
- The vessel crew did not maintain adequate record-keeping, including records of maintenance being done and vessel log entries.
- The company did not provide the crew with checklists to assist with the operation of the vessel or procedures related to maintenance.

### RISK FINDINGS:

If companies do not provide an adequate framework for the management of safety, which includes the implementation of procedures, documentation, and adequate record-keeping, there is an increased risk that operational hazards will not be identified.



# INFORMATION NOT FLOWING DUE TO:

UNSAFE PRACTICES ARE CONDONED IN A POOR SAFETY CULTURE



## R13D0054

On 06 July 2013, shortly before 0100 Eastern Daylight Time, eastward Montreal, Maine & Atlantic Railway freight train MMA-002, which was parked unattended for the night at Nantes, Quebec, started to roll. The train travelled approximately 7.2 miles, reaching a speed of 65 mph. At around 0115, when MMA-002 approached the centre of the town of Lac-Mégantic, Quebec, 63 tank cars carrying petroleum crude oil (UN 1267) and 2 box cars derailed. About 6 million litres of petroleum crude oil spilled. There were fires and explosions, which destroyed 40 buildings, 53 vehicles, and the railway tracks at the west end of Megantic Yard. Forty-seven people were fatally injured. There was environmental contamination of the downtown area and of the adjacent river and lake.



### ANALYSIS

Training and oversight issues allowed unsafe practices relating to train securement to develop. An SMS that was not being used in a poor safety culture meant these unsafe practices were not identified.

### FINDINGS

**AS TO CAUSES AND CONTRIBUTING FACTORS:** Montreal, Maine & Atlantic Railway did not provide effective training or oversight to ensure that crews understood and complied with rules governing train securement.

**AS TO CAUSES AND CONTRIBUTING FACTORS:** Montreal, Maine & Atlantic Railway's weak safety culture contributed to the continuation of unsafe conditions and unsafe practices, and compromised Montreal, Maine & Atlantic Railway's ability to effectively manage safety.



## A13W0120

On 19 August 2013, a Buffalo Airways Ltd. Douglas DC-3C was operating as a scheduled passenger flight from Yellowknife, Northwest Territories, to Hay River, Northwest Territories. After lift-off from Runway 16 at 1708 Mountain Daylight Time, there was a fire in the right engine. The crew performed an emergency engine shutdown and made a low-altitude right turn towards Runway 10. The aircraft struck a stand of trees southwest of the threshold of Runway 10 and touched down south of the runway with the landing gear retracted. An aircraft evacuation was accomplished and there were no injuries to the 3 crew members or the 21 passengers.



### ANALYSIS

The aircraft was unable to climb on the remaining engine partly due to the fact that the aircraft was overweight. The practice in place at the company was for the first officer to work out the weight and balance as the aircraft was enroute – a practice condoned at the highest level of management.

### FINDINGS

**AS TO CAUSES AND CONTRIBUTING FACTORS:** An accurate take-off weight and balance calculation was not completed prior to departure, resulting in an aircraft weight that exceeded its maximum certified take-off weight.

**AS TO CAUSES AND CONTRIBUTING FACTORS:** The operator's safety management system was ineffective at identifying and correcting unsafe operating practices.

**AS TO RISKS:** If companies do not adhere to operational procedures in their operations manual, there is a risk that the safety of flight cannot be assured.



# INFORMATION NOT FLOWING DUE TO:

WEAK INCIDENT REPORTING OR INVESTIGATION PROCESSES DID NOT IDENTIFY RISKS  
AND THEREFORE OPPORTUNITIES TO MITIGATE WERE MISSED



## M13M0287

On 07 November 2013 at 1200 Atlantic Standard Time, the roll-on/roll-off passenger ferry Princess of Acadia, which was carrying a total of 87 passengers and crew, sustained a main generator blackout and grounded while approaching the ferry terminal at Digby, Nova Scotia. No pollution or injuries were reported.

### ANALYSIS

The vessel had experienced a similar, but less serious, occurrence sometime before the occurrence investigated by the TSB. Few of the systemic issues identified in the TSB investigation were identified in the previous investigation. As a result they persisted and contributed to this occurrence.

### RISK FINDINGS:

If a safety management system does not provide guidance for the master to proactively identify risks and investigate hazardous occurrences, underlying risks may not be addressed.



## R11Q0050

At approximately 0615 Eastern Daylight Time on 26 September 2011, Quebec North Shore and Labrador Railway train PL485 derailed 17 loaded ore cars at Mile 56.33 of the Wacouana Subdivision near Tika, Quebec. About 450 feet of main track was damaged and about 200 feet of the siding track was damaged. There were no injuries and no permanent environmental damage.

### ANALYSIS

There were over 500 QNS&L train separations between January 2006 and October 2011. Even though locomotive engineers submitted a form giving an informal description of the defect type, that description was lost when the train separation was entered in the database because all defect types affecting the coupling device were entered under the generic term of broken knuckle. It was impossible to know if other train separations could have been caused by ill-positioned carrier plates because all mechanical defects were entered as broken knuckles.

### RISK FINDINGS:

Without sufficient historical data, it is difficult to determine if the problem is recurring or systemic and it is difficult to identify other affected cars and also minimize the potential risks.

