



REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A16-12

Oversight of commercial aviation in Canada: Implementation of formal safety management system (SMS)

Background

On 31 May 2013, at approximately 0011 Eastern Daylight Time, the Sikorsky S-76A helicopter (registration C-GIMY, serial number 760055), operated as Lifelight 8, departed at night from Runway 06 at the Moosonee Airport, Ontario, on a visual flight rules flight to the Attawapiskat Airport, Ontario, with 2 pilots and 2 paramedics on board. As the helicopter climbed through 300 feet above the ground toward its planned cruising altitude of 1000 feet above sea level, the pilot flying commenced a left-hand turn toward the Attawapiskat Airport, approximately 119 nautical miles to the northwest of the Moosonee Airport. Twenty-three seconds later, the helicopter impacted trees and then struck the ground in an area of dense bush and swampy terrain. The aircraft was destroyed by impact forces and the ensuing post-crash fire. The helicopter's satellite tracking system reported a takeoff message and then went inactive. The search-and-rescue satellite system did not detect a signal from the emergency locator transmitter (ELT). At approximately 0543, a search-and-rescue aircraft located the crash site approximately 1 nautical mile northeast of Runway 06, and deployed search-and-rescue technicians. However, there were no survivors.

The Board concluded its investigation and released report A13H0001 on 15 June 2016.

TSB Recommendation A16-12 (June 2016)

Transportation companies have a responsibility to manage safety risks in their operations. Compliance with regulations can only provide a baseline level of safety for all operators in a given sector. Since regulatory requirements cannot address all risks associated with a specific operation, companies need to be able to identify and address the hazards specific to their operation.

In the traditional oversight model, companies are not required to have formalized systems in place to continuously manage safety at a systems level. Oversight is accomplished using an inspect-and-fix approach. In this approach, the regulator's role is focused on finding instances of regulatory non-compliance, which the operator must correct. The impact on safety of this approach is limited for 2 main reasons.

First, it is not possible for the regulator to examine continuously all aspects of an operation. Challenges in detecting non-conformances have been identified in a number of previous TSB investigations (e.g. A12W0031, A12C0154, and A13W0120). For example, in A13W0120,

although TC had assessed the operator involved as high risk, and was conducting frequent surveillance activities, the focus had not shifted to verifying regulatory compliance, and remained at a systems level. As a result, TC's surveillance did not identify the unsafe operating practices that contributed to the severity of the occurrence.

Secondly, if the systemic causes of non-conformance are not identified and addressed, it is likely that unsafe conditions will persist. The TSB has also previously identified this pattern in a number of investigations (e.g. A10Q0098, A10Q0117, and A13H0002). For example, in A13H0002, the report identified weaknesses in the oversight of an operator with a transitioning safety management system (SMS). In this case, the operator experienced difficulty producing acceptable CAPs and meeting its proposed implementation time frames. This resulted in repeated delays in addressing deficiencies. During this period, TC postponed any additional surveillance activities pending CAP implementation. The suspension of surveillance activities while waiting for the CAP process to run its course effectively reduced the frequency of oversight for an operator that was considered high risk and left the operator with less than the planned level of oversight for an extended period.

When implemented properly, SMS provide a framework for companies to effectively manage risk and make operations safer. Regulatory requirements for companies to implement SMS are the first step in ensuring that all operators are capable of meeting their safety responsibility. It is for this reason that the TSB has echoed calls from ICAO and the worldwide civil aviation industry emphasizing the advantages of SMS.

Still, even with SMS requirements, companies will vary in degrees of ability or commitment to effectively manage risk. Less frequent surveillance, focused on an operator's safety management processes, will be sufficient for some companies. However, the regulator must be able to vary the type, frequency, and focus of its surveillance activities to provide effective oversight to companies that are unwilling or unable to meet regulatory requirements or effectively manage risk. Further, the regulator must be able to take appropriate enforcement action in these cases.

Operators with a mature, effective SMS, along with a corresponding safety culture and abilities, may be the subject of less-frequent, systems-level oversight. In contrast, companies that have not demonstrated the capability to effectively manage risks at a systems level should be subject to more frequent surveillance, with a greater emphasis on ensuring compliance with regulations. As an operator's systems mature and become more effective, the frequency of oversight may be reduced and the balance of oversight can shift from the compliance-based model to more systems-level surveillance activities.

In the investigation of the Ornge RW accident at Moosonee, Ontario, the TSB found that TC's approach to surveillance activities did not lead to the timely rectification of non-conformances. It also found that TC inspectors believed that tools other than a corrective action plan to guide the operator back into compliance were either unavailable or inappropriate for use with a willing operator. As a result, the operator's willingness to address surveillance findings superseded concerns about the operator's capability to address the deficiencies in post-surveillance decision making. In addition, the investigation found that the training and guidance that was provided to TC inspectors contributed to uncertainty, which led to inconsistent and ineffective surveillance of Ornge. Ultimately, although TC was conducting frequent and detailed surveillance, the approach to returning the operator to a state of compliance was not well matched to the capabilities of the operator.

The investigation also noted that although TC was relying heavily on the CAP process, the operator was not required to have an SMS and, as a result, had not demonstrated to TC that it had the processes in place to effectively manage safety.

The TSB has previously identified these issues; safety management and oversight is a multi-modal item on the TSB Watchlist, which identifies those issues posing the greatest risk to Canada's transportation system. The Watchlist proposes the following solutions in this area:

- TC must implement regulations requiring all air operators to have formal safety management processes, and TC must oversee these processes.
- Companies that do have SMS must, in turn, demonstrate that it is working – that hazards are being identified and effective risk mitigation measures are being implemented.
- Finally, when companies are unable to effectively manage safety, TC must not only intervene, but do so in a manner that succeeds in changing unsafe operating practices.

The investigation into this accident and other recent occurrences emphasize the need for operators to be able to effectively manage safety. More than 10 years after introducing the first SMS regulations for airline operators and the companies that perform maintenance on their aircraft, SMS implementation has stalled. While many companies, such as Ornge RW, have recognized the benefits of SMS and voluntarily begun implementing it within their organizations, approximately 90% of all Canadian aviation certificate holders are still not required by regulation to have an SMS. As a result, TC does not have assurance that these operators are able to effectively manage safety:

Therefore, the Board recommended that

The Department of Transport require all commercial aviation operators in Canada to implement a formal safety management system.

TSB Recommendation A16-12

Transport Canada's response to Recommendation A16-12 (September 2016)

Transport Canada agrees in principle with the recommendation.

TC already requires a safety management system in commercial air operators that represent approximately 95% of passenger miles. The department recognizes the added value of a safety management system.

TC will address this recommendation in two ways. First, by continuing to promote voluntary adoption of a safety management system among the balance of commercial air operators. To support this, the department will publish updated guidance material aimed at smaller sized-operations this year.

Secondly, over the next year and a half, the department will be reviewing the policy, regulations and program related to safety management systems in civil aviation. The expected outcome of the review is a determination on the scope, regulatory instrument, applicability and oversight model.

This review will rely on the input of the department's employees, as well as industry, international authorities and other specialists in this area.

TSB assessment of Transport Canada's response to Recommendation A16-12 (November 2016)

In its response, Transport Canada indicated that it would continue promoting the voluntary adoption of a safety management system by publishing guidance material for smaller operations. The TSB is pleased that TC will continue to promote the benefits of SMS, and that it has published updated guidance material to assist smaller operators.

Transport Canada also advised that it would review the policy, regulations, and program related to SMS in commercial aviation. There is no clear indication at this time what Transport Canada will do once the review is complete and whether or not it intends on initiating a rule-changing process to require all commercial aviation operators to implement a formal safety management system.

Therefore, the response to Recommendation A16-12 is assessed as **Unable to Assess**.

Transport Canada's response to Recommendation A16-12 (December 2019)

In our previous update on this recommendation, TC committed to undertake a policy review of Safety Management Systems (SMS). The SMS policy review is ongoing and aims to answer the many questions that need to be answered to ensure that SMS is implemented in a way that improves safety, that is sustainable, and that both industry and TC are prepared for the implementation.

As the SMS policy review is in progress, there are no decisions or plans to modify or expand SMS to other sectors at this time.

Currently, the sectors that have requirements to implement SMS formally under the CARs include airlines operating under CARs subpart 705 and their associated maintenance providers, air navigation services and air traffic service providers under part VIII of the CARs, operators of certified airports under Part III of the CARs and private operators operating under CARs subpart 604.

As such, to be compliant with the standards and recommended practices contained in Annex 19 of the International Civil Aviation Organization (ICAO) convention, TC will need to identify if SMS requirements need to be developed for operators:

- Conducting international commercial air transport under CARs subparts 702, 703 and 704;
- Approved maintenance organizations (CARs subpart 573) providing services to these operators;
- Approved training organizations (CARs subpart 406);
- Design organizations (CARs subpart 505); and,
- Manufacturing organizations (CARs subpart 561).

Phase one of the SMS policy review is almost complete including an examination of the current state of SMS, and lessons learned since the initial SMS implementation in 2005. This work has included a review of previous examinations of experiences with SMS at TC including:

- The recommendations from an evaluation of SMS in Civil Aviation made by TC's Evaluation and Advisory Services between 2017 and 2019.
- The conclusions of an environmental scan focused on airport certificate holders under Part III of the CARs to help identify where TC may be able to strengthen guidance material or other support for inspectors and airport operators.

Phase two, the engagement strategy, is expected to occur in winter 2020, and will:

- Examine the approach of other regulating departments and agencies that have undergone similar regulatory reviews;
- Examine best practices of other aviation regulating jurisdictions (e.g. Federal Aviation Administration, European Aviation Safety Agency, Civil Aviation Safety Authority, Civil Aviation Authority, among others) who have recently undergone major regulatory modernization initiatives;
- Consult with industry stakeholders, all TC Regions and other experts; and
- Identify the support required for the oversight program as TC moves forward with efforts to modernize current SMS practices as well as future implementation of SMS in other sectors.

Upon completion of phase two, the SMS policy review will develop an options paper that will identify recommendations for regulatory and non-regulatory tools for the modernization of current SMS practices as well as future implementation of SMS in other sectors.

In addition to carrying out the SMS Policy Review, TC continues to take a leadership role in promoting and developing SMS through its role in the Safety Management International Collaboration Group. This group recently published a resource paper entitled "*Determining the Value of SMS*"¹ that provides tools to calculate the return on investment for SMS implementation, including the cost breakdown and the added benefits or value of safety.

TSB reassessment of Transport Canada's response to Recommendation A16-12 (March 2020)

In its response, Transport Canada (TC) indicated that it has started a two-phase policy review of safety management systems (SMS) to ensure that the implementation of SMS improves safety, is sustainable, and that all involved parties are prepared for the implementation. Until this review is complete, TC is not planning to either modify or expand SMS to other sectors.

In addition, TC advised that it was completing phase one of its two-phase review. However, it did not include a timeline for the completion of phase two. It did not provide a timeline either for the subsequent option paper that will be developed to identify recommendations of both regulatory and non-regulatory tools to be used to modernize SMS practices and to implement SMS in additional sectors.

In the meantime, Canada is not complying with SMS standards and recommended practices contained in Annex 19 to the *Convention on International Civil Aviation* published by the

¹ Safety Management International Collaboration Group (2016), *Determining the Value of SMS*. Available at: <https://www.skybrary.aero/bookshelf/books/3427.pdf>

International Civil Aviation Organization (ICAO). As identified by TC, the following are not meeting the SMS requirements of ICAO Annex 19:

- Operators conducting international commercial air transport under subparts 702, 703 and 704 of the *Canadian Aviation Regulations* (CARs);
- Approved maintenance organizations (CARs subpart 573) providing services to these operators;
- Flight training units (CARs subpart 406);
- Design approval organizations (Chapter 505 of the *Airworthiness Manual*); and
- Approved manufacturers (CARs subpart 561).

The Board is encouraged that TC wants to ensure the SMS policy achieves the objectives outlined above. However, this policy review is still not complete even though TC originally stated, in 2016, that it would take a year and a half to complete.

There is no clear indication at this time of what TC will do once the review is complete and whether or not it intends to initiate regulatory changes to require that all commercial aviation operators, operating both domestically and internationally, implement a formal SMS.

Therefore, the Board is **unable to assess** the response to the recommendation.

Next TSB action

The TSB will continue to monitor the progress of TC's actions to mitigate the risks associated with the safety deficiency identified in Recommendation A16-12, and will reassess the deficiency on an annual basis or when otherwise warranted.

This deficiency file is **Active**.