



February 22, 2018

Shaun Williams
Air Safety Investigator
National Transportation Safety Board
Alaska Regional Office
222 West 7th Avenue
Anchorage, AK 99513

Re: ANC17MA001_Update on Status of 7-point Mitigation Plan

Dear Investigator Williams,

As requested, this correspondence sets forth the updated 7-point CFIT Mitigation Plan agreed to between Hageland and the FAA. The updated plan reflects further discussions between the parties, as well as refinements that resulted from the safety risk analysis conducted after the formulation of the initial plan. For ease of reference, this letter reiterates the initial plan for each item using the language of the FAA's letter dated January 10, 2017, and then provides the current agreement and/or status.

1. **VFR Routes:** Hageland has committed to implementing company VFR routes. All VFR flights will be operated on a company VFR route and will have minimum altitudes(s), visibility and ceiling assigned for day/night operations. The majority of company routes will utilize a direct routing and will be flown using GPS lateral guidance to supplement visual flight. For flights where a GPS direct route is not practical due to terrain or other geographical concerns, a visual route will be developed, documented, assigned and flown. The operational parameters for each route will be entered into the Hageland management software system (FlightMaster) and will be auto generated on the flight release for every departure. Each route will be assigned a specific number and will be authorized for each leg of the flight. This is a significant undertaking as Hageland has approximately 7600 possible city pair routes. This will be fully implemented NLT September 1, 2017.

Update: Hageland redesigned its flight manifest/release process. The operational parameters for each route are entered into FlightMaster and auto generated on the flight release for each departure. Hageland also added a new section to the General Operations Manual (GOM) on October 2, 2017, that sets forth policies on VFR operations for day VFR, night VFR, special interest airports, and special VFR operations. The new VFR policy includes, among other enhancements, an increase in minimum visibility (three miles) for day VFR operations, a designation of airports of "special interest" for which specific operating minimums have been defined, and the provision of emergency en route altitudes (that are recorded on the flight release, along with the minimum required visibility) that afford at least 1,000 feet of terrain clearance in the event that IMC is inadvertently encountered. For flights greater than 20 nautical miles, operated on an IFR capable aircraft and pilot, the new policy requires that an IFR flight plan be filed and flown, unless the flight complies with the night VFR minimums for the given route.

2. **FOQA:** Hageland has committed to installing FOQA type equipment in the entire fleet. This commitment will allow the company to have specific knowledge of exactly what is taking place on each individual flight. This commitment will require imagination on the part of Hageland and the FAA as there is no specific FOQA equipment approved for the C207, C208 and PA31 airframes. Implementation dates are a function of identifying the equipment and an installation schedule. The final implementation will be scheduled for December 1, 2017. However, it is understood between the FAA and Hageland that the final implementation schedule may need adjustments as this process unfolds. Hageland will regularly keep the FAA informed on the progress of this item.

Update: Hageland is installing FOQA-type equipment in its entire fleet. Hageland has completed the engineering work for the installation in the Beech 1900, and seven of the eight aircraft are scheduled for FOQA installation by

Phone [REDACTED] | Fax [REDACTED] | [REDACTED] Anchorage, AK 99502 | flyravn.com

Corvus Airlines Ravn Alaska | Hageland Aviation Ravn Connect | Frontier Flying Service Ravn Connect

2018 year's end. The design work for the C-207 installation has been completed, and one unit has been installed. The parameters for the event sets are being developed, and units will be installed in the remainder of the fleet as aircraft come in for maintenance.

Regarding the C-208, design work is scheduled to be completed in the April/May 2018 time frame. Approximately 70% of the fleet is projected to be equipped by the end of 2018 with the remaining 30% being modified in 2019. Technically, data will be available to be analyzed by mid-year, but event sets have thus far not been developed. The FOQA design for the Navajo installation is scheduled for completion in June, 2018. Data from this aircraft may be received shortly thereafter, again once the event sets are completed. FOQA installation in the Navaho fleet is estimated to be completed approximately by December 2018.

The FOQA data will be fed into a department tasked with monitoring flights and verifying operational performance. This will further enable Hageland to review compliance with company procedures through data analysis, similar to a Part 121 operation.

Currently, Hageland's entire fleet is outfitted with *Spidertracks*, a GPS tracking systems, and flight data is reviewed daily to ensure compliance with filed flight plans and company procedures. The FOQA-type equipment installation will expand and enhance this compliance mechanism.

- 3. Electronic Manual System:** Hageland has committed to reformatting the GOM, GMM and the OTM into 100 percent electronic format/presentation. This complete rework will allow Hageland to enjoy complete consistency and ease of revision across the accepted manual system. The GOM is expected to be complete by February 1, 2017. Final implementation will be NLT September 1, 2017.

Update: This item was completed. The General Operations Manual (GOM), Operations Training Manual (OTM), and General Maintenance Manual (GMM) are all in electronic format, in addition to numerous other manuals.

- 4. IFR Route Study:** Effective November 17, 2016, all routes that encompass adequate IFR infrastructure, flown by an IFR qualified pilot in an IFR capable aircraft will either be operated IFR or VFR. If operated VFR, all flights (day and night) will comply with the night VFR routes that are published in Operations Specifications B050. Feedback from the pilots is currently being collected and will be studied and analyzed to determine which routes possess realistic infrastructure capabilities to safely conduct operations under IFR. This study will be complete NLT January 31, 2017.

Update: Hageland utilized the IFR route study to develop its VFR operations policies, as well as to identify areas where IFR is not an option. The policies promote IFR operation where it is safe to do so. For flights greater than 20 nautical miles, operated on an IFR capable route with an IFR capable aircraft and pilot, Hageland's policy requires that an IFR flight plan be filed and flown, unless the flight complies with night VFR minimums for the given route.

- 5. Professional Pilot Program:** Hageland is in the process of developing a program to address human factors training, SIC to PIC transition training, leadership and pilot evaluations. Hageland is currently interviewing third party consultants to help develop the program. Hageland intends to start conducting human factors training in January of 2017.

Update: Hageland has implemented and continues to refine a Professional Pilot Continuing Education Program, and has enlisted the support of professional organizations such as Doss Aviation and Convergent Performance to provide training and support on human factors, leadership, professionalism, SMS and CRM. SIC to PIC transition training is not applicable because Hageland is not transitioning pilots from SIC to PIC. Hageland completed multiple training sessions in 2017, and the training is continuing on an ongoing basis in 2018.

Phone [REDACTED] | Fax [REDACTED] | [REDACTED] Anchorage, AK 99502 | flyravn.com

Corvus Airlines Ravn Alaska | Hageland Aviation Ravn Connect | Frontier Flying Service Ravn Connect

6. **Flight Operations Compliance Monitoring Department:** Hageland has committed to creating a separate department tasked with the monitoring of flights, reviews of proper flight release procedures and verification of operations. This department will be staffed with Flight Data Analysts (FDA) and company Flight Inspectors (FI) and will be managed by a Director of Flight Standards. The FDA will review FOQA data looking for anomalies. The FI will verify pilot compliance with company procedures and make recommendations to management on procedures that need to be modified. The primary focus of this department is to 1) maintain the company's Operations Manual, 2) assure compliance with company procedures thru data analysis, 3) follow up on data anomalies and 4) conduct flight operations inspections.

Update: Hageland outfitted its entire fleet with GPS tracking systems, and the Operational Control Center reviews flight data daily. We have developed criteria to monitor flight data against company policies and procedures to identify any anomalies or noncompliance with company procedures. Once FOQA equipment is installed and the development of the FOQA program is complete, the review of flight data will occur in accordance with the initial plan set forth above.

7. **GPS Inoperative:** Flights without an operable GPS will be elevated to a RA3 risk on the current Risk Assessment Worksheet. This elevated risk will require specific management approval for the flight to be operated. Management will provide specific guidance to the flight crews on how the GPS inoperative operation is to be conducted. This GPS inoperative requirement will be incorporated into the next GOM revision that is scheduled to be submitted by January 31, 2017.

Update: This item was completed.

In addition to the items set forth above, Hageland, as part of its ongoing commitment to continual improvement, is developing a Safety Management System (SMS) Voluntary Program. Hageland is currently conducting a gap analysis for this program, and is on track for program completion later this year or 2019. The program will incorporate formal methods and processes, such as monthly safety action meetings, to identify hazards, and to continually assess and control risk. Hageland's current plans also include undergoing an IATA Standard Safety Assessment (ISSA) in 2018. The ISSA is an internationally recognized, voluntary safety assessment that will serve as an additional evaluation and verification of Hageland's high level of safety. The ISSA will also further the completion and FAA recognition of Hageland's SMS Voluntary Program.

If you have any further questions, please do not hesitate to let me know.

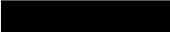
Respectfully,



Adam Ricciardi
Director of Safety Assurance &
Company Party Representative for Accident #ANC17MA001
Ravn Alaska

O: 



Phone  | Fax  |  Anchorage, AK 99502 | flyravn.com

Corvus Airlines Ravn Alaska | Hageland Aviation Ravn Connect | Frontier Flying Service Ravn Connect