

Aero-Flite, Inc. Q400 Simultaneous Refueling and Retardant Loading Risk Assessment Chart July 2022

Risk	Severity	Pre-Mitigation Probability	Potential Effect	Mitigation Technique	Post-Mitigation Outcome
Increased ramp congestion	Minor	Occasional	With an increase in activity around the airplane, increased potential for FOD damage, personnel tripping hazards.	Minimum personnel should be in the fueling and retardant loading area to minimize congestion (tripping overloading hoses, fueling hoses, grounding wires) and improve safety margins. There needs to be a communication link established between the fueling operation and loading of retardant personnel. If the retardant loading and fueling operation are on opposite sides of the aircraft, there should be no crossing of the centerline of the aircraft of personnel. This procedure will eliminate congestion and keep situational awareness at a maximum. If retardant loading and fueling operations are conducted on the same side (right), additional caution must be exercised to avoid over-congesting the area and degrading overall situational awareness. The Q400 refueling port is located on the aft portion of the right engine nacelle. In this situation, fuel truck placement and associated fuel hose and retardant hose routing are essential to deconflict. The retardant loading hose should run behind the right-side landing gear so as not to interfere with refueling operation. Clear lines of communication must be established between both loading parties to properly manage the risk. Care must be exercised to allow for the free movement of personnel and equipment, especially when both operations take place on the same side of aircraft.	Low
Increased need for proper choreography of ground parties and specific delineation of duties to account for dynamic nature of the operation	Minor	Occasional	Increased communication and coordination challenges that could break down simultaneous loading procedure safety margins, effectiveness, and efficiency.	Both engines on the Q400 will be shut down to conduct simultaneous fueling and retardant loading operations. The flight crew will request an agency ramp manager supervise the entire operation. The ramp manager has full authority to stop each operation at any time because of safety concerns. There needs to be a positive communication link established between the fueling operation and loading of retardant personnel. If the retardant loading and fueling operation are on opposite sides of the aircraft, there should be no crossing of the centerline of the aircraft of personnel. This procedure will help eliminate congestion and maximize situational awareness.	Low
Increased flight crew fatigue	Moderate	Occasional	An increased level of fatigue for the flight crew can result in degraded performance. Also, may have a potentially negative impact on CRM, ORM and decision-making.	Captain/PIC is final approval authority on whether to pursue simultaneous loading if/when conditions make sense. All crew members have "knock it off authority" if simultaneous loading will have a negative impact on crewmember's physiological state or mission readiness.	Low

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July 2022 (Continued)**

Risk	Severity	Pre-Mitigation Probability	Potential Effect	Mitigation Technique	Post-Mitigation Outcome
Fuel Spill	Major	Remote	May cause combustion, fire and/or explosion	Educate and train personnel thoroughly on the hazards and proper safety protocols. Follow SOP to prevent improper fueling procedures. Utilize current physical safeguards and/or indicators on equipment and aircraft. Utilize fire extinguisher systems, as necessary.	Low
Static Electricity while loading fuel and/or retardant	Major	Occasional	Shock, possible fire, and explosion	Aircraft must be properly grounded/bonded. Retardant hose is already grounded by its own design. Ensure all personnel involved are educated/trained on proper procedures. Verify electrical properties of all retardants.	Medium
Retardant Spill	Minor	Remote	May create slippery ramp surface and cause distraction from primary task.	Follow SOP to prevent overfilling retardant tank. Closely monitor flow rate and adjust accordingly to minimize chances of overfilling. Follow SOP for tanker base clean up utilizing equipment on hand.	Low