Appendix 6.4 – Safety Requirement by Civil Aviation Department on Fuel Storage, Management, Handling and Distribution (Extracted from Chapter 2 of CAD 748 Aircraft Fuelling and Fuel Installation Management)

The Civil Aviation Department of Hong Kong published a guideline on Aircraft Refuelling and Fuel Installation Management (CAD 748) which specifies the following requirement regarding the fuel storage, management, handling and distribution.

1. General

1.1 Licensees should consider:

a) The fire risk associated with the handling of fuel, e.g. fuel leaks, sprays, or vapor emissions;
b) The possibility of fuel quality deterioration, e.g. contamination by other liquids or solid particles; the passage of time; poorly maintained fuel installations and storage equipment and inappropriate handling procedures; and
c) The risks associated with delivery to the aircraft and apron safety.

Note: Licensees should note that fuel vapour will be released from aircraft vents during fuelling, and from fuelling vehicle vents during de-fuelling.

1.2 Licensees should also consider the risks associated with those stages of the fuel handling and distribution process that relate in particular to personnel e.g. passengers and crew, apron staff, and fuelling operatives; to fuel installations and fuel equipment; and in so doing should:

a) Identify the key responsibilities of individuals involved in the management and distribution of fuel;
b) Ensure that all personnel involved in the processes of receiving, storing and dispensing of fuel are suitably trained or experienced to carry out the associated tasks; and
c) Perform periodic audits of all fuel installations on the aerodrome to ensure compliance with the Aerodrome Manual and procedures. The aerodrome inspector may wish to see records of these audits.

1.3 Licensees should provide quality control and maintenance procedures for preventing the deterioration or contamination of fuel stored in the fuel installation, procedures for the safe delivery into an aircraft of fuel fit for use and procedures for the retention of records as required under the AN(HK)O.

1.4 Fuel management procedures should include, but not be limited to, the following elements;

a) Fuel reception, storage, and quality maintenance;
b) The assessment of fuel quality;
c) The safe delivery into an aircraft of fuel fit for the purpose;
d) The taking and storing of fuel samples;
e) The onward distribution of fuel;
f) 'Incident' prevention;
g) 'Incident' management;
h) Preventing or minimizing electrostatic discharge during the handling of fuel;
i) Handling fuel during extremes of weather e.g. electric storms in the aerodrome vicinity or in high ambient temperatures;
j) The actions to be taken should fuel be found to be contaminated; and
k) Regular and periodic maintenance and cleaning of fuel installations and equipment.

2. Apron Safety Management

2.1 In general, passengers should be disembarked prior to the commencement of fuelling, however, circumstance might prevail where this is deemed to be impractical. In such cases, licensees should determine the risks associated with passengers embarking, disembarking or remaining on board the aircraft during fuelling, and should establish procedures to mitigate those risks. These procedures should:

a) be designed to enable the most rapid evacuation of passengers from the aircraft should the need arise;
b) ensure the ground area into which passengers would evacuate is kept clear of equipment and obstacles;
c) ensure vehicles attending the aircraft do not impede access to the site by rescue and fire-fighting services (RFFS) vehicles and personnel, or the egress of passengers evacuating the aircraft;
d) include appropriate attendance of RFFS;
e) in the case of medical flights, take into account the ability, or inability, of the patient and attendant staff to effect a rapid evacuation from the aircraft;
f) take into account the ability of those whose mobility is impaired to effect a rapid evacuation from the aircraft.

2.2 Aircraft operating companies should appoint a competent person to supervise the observance of correct aircraft fuelling procedures, and to liaise with the fuel supplier's operatives. The Fuelling Supervisor should be instructed in the requirements, the responsibilities and the safety measures of the fuelling supervisory task, and should remain in the apron area while fuelling is taking place.

2.3 Licensees should ensure that all personnel who work in the vicinity of aircraft are aware:

a) Of their responsibilities following an accident or incident in the Safety Area and of the appropriate actions to be taken;
b) That should the need arise when fuelling is taking place with passengers boarding, disembarking, or remaining on the aircraft, escape slides may be used to evacuate those on board; and
c) That the areas into which escape slides would deploy and the immediate surrounding area should be kept clear to enable rapid egress of passengers from the aircraft vicinity.

2.4 Licensees should provide:

a) a "Stop" button close to each hydrant fuelling point to stop the flow of fuel immediately;
b) the stand area emergency equipment, including fire extinguishers; and
c) The training needs associated with the use of this equipment.

2.5 Vehicles (including fuelling vehicles) and equipment should be positioned so that:

a) They do not obstruct access by RFFS vehicles;
b) They do not inhibit the rapid removal of the fuelling vehicle from the apron, or aircraft fuelling or parking areas should this become necessary;
c) They can easily and rapidly be removed;
d) The deployment of escape slides and the egress of passengers from the area into which these slides would deploy are not obstructed; and
e) The settling of the aircraft as its weight increases with the uplift of fuel and payload does not impinge on them.

2.6 Some aircraft have the facility to be fuelled through more than one fuelling point simultaneously, which may require fuel equipment to be positioned on both sides

of the aircraft. Licensees should consider the risks associated with this practice, and should establish procedures to mitigate them. This practice may have an impact on familiar procedures established for single point fuelling in that it may affect the:

a) Ability of any passengers, staff and crew, that have remained onboard during fuelling, to effect a safe, rapid evacuation;
b) Safety of passengers boarding or disembarking the aircraft;
c) Safety of apron staff attending the aircraft;
d) Ability of the Fuelling Supervisor to oversee the whole fuelling operation;
e) Number and extent of the Fuelling Zones; and
f) Fire risk