CAPITA

BESPOKE PERMIT APPLICATION – NON-TECHNICAL SUMMARY

Project:	London Southend Airport
Purpose:	Surface De-icer Drainage Discharge Permit Application
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NON-TECHNICAL SUMMARY OF PROPOSED DE-ICER USAGE AT LONDON SOUTHEND AIRPORT

To enable London Southend Airport (LSA) to make the runways and taxiways safe for aircraft (in accordance with relevant Civil Aviation Authority guidance) it is necessary to remove ice, snow and frost during the winter months. Due to increased aircraft movements the airport anticipates an increased need for de-icing of aircraft and pavement surfaces. Aircraft de-icing is dealt with separately as part of the terminal development and extension. When aircraft de-icing takes place, run-off is diverted to holding tanks to prevent it discharging to outfall.

This document provides a non-technical summary of the proposed de-icing operations that will be implemented by the airport operator, LSA. The use of de-icing materials is to be managed to minimise the risk of environmental damage that could potentially be caused by the chemicals involved.

The de-icing of runway and taxiways is to be undertaken using a potassium acetate liquid chemical which is applied in a spray. This de-icing chemical can be applied pre-emptively or after a snow, frost or ice event and at different spray rates depending on the severity of the winter conditions. De-icing is normally carried out only under severe or prolonged freezing conditions.

The de-icing chemical will melt snow, frost or ice and this will drain into the conventional storm water drainage network at the airfield. The rate at which the de-icing chemical run-off will enter the drainage network will be accelerated if it is followed by a rainfall event. The runoff will be conveyed via the storm drainage network to outfall either into Eastwood Brook or Prittle Brook.

Potassium acetate based de-icing chemicals are of low toxicity to aquatic organisms[2]. While the chemicals have the potential to increase the biological oxygen demand (BOD) of receiving watercourses, the oxygen demand of these compounds in the aquatic environment is considered to be low. This indicates that de-icing materials based on acetates have the potential to fully degrade in the aquatic environment without causing problems resulting from oxygen depletion from the water column[2].

Water quality monitoring of the receiving watercourses has been carried out to give a reference standard prior to use of de-icing chemicals. Monitoring has continued in parallel to the use of de-icing chemicals to highlight what effect these have on the aquatic environment.

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[1] It should be noted that recent improvements to the runway drainage incorporated measures to prevent drained surface water from entering the groundwater environment. For example, filter drains were lined in readiness to accept de-icer chemicals in the runoff and prevent contamination of the underlying soils and groundwater.

[2] MURGATROYD, C. *De-icing Chemicals: Priorities for Environmental Quality Standards Development, WRc plc, R&D Technical Report P31.* Environment Agency, 1996.

The results of this monitoring have shown that airport de-icing operations have not had a negative impact on the receiving watercourse.

It is proposed that LSA implement a management system to monitor the use of de-icing chemicals at the airport. This will include recording exactly when the chemicals are used, where they are used and in what quantity. On the basis that the use of de-icing chemicals does not increase significantly, periodic monitoring will be carried out to ensure there are no negative environmental impacts to the watercourses. If the use of de-icing chemicals is seen to increase, London Southend Airport will review the control measures and work with the Environment Agency regional teams to understand the water course impact and agree to provide enhanced protection where required.