



DEN Aircraft Deicing System Modernization

- DEN maintains an extensive aircraft deicing system (ADS) to store and distribute aircraft deicing fluid (ADF), collect deicing waste, and recover propylene glycol (PG).
- The ADS includes equipment to blend Type I ADF on site, tanks to store ADF in centralized locations, and underground piping to distribute ADF to truck fill stations on the airfield. All the airlines currently operating at DEN utilize the ADS.
- Deicing waste collection and PG recycling are critical to managing the risk of deicing waste entering the environment through stormwater. After ADF is applied to aircraft, the ADS allows for collection of deicing waste at the centralized deicing pads, conveyance to dedicated storage tanks, and PG recycling. PG is recycled through a two-stage concentration and distillation process.
- The distillation equipment used to recycle PG is original to airport construction and is beyond its life expectancy based on its time in service, loss of processing throughput, and recent equipment failures. The equipment's throughput is now less than half of its original design capacity. This efficiency loss puts DEN at risk of the processing capacity not meeting demand and increases regulatory risk from diversions or overflows that would reach receiving waters. In addition, the existing distillation process produces an ester byproduct in the recycled PG that precludes the product from being used for Type I ADF.
- DEN has a project underway to replace the PG distillation equipment. The new system will generate a PG product for use in ADF that can be certified to the SAE standard. This will create a closed-loop that localizes and strengthens the supply chain, reduces environmental impacts, and is expected to reduce costs for airlines operating at DEN. The project will be the largest scale demonstration of a closed-loop glycol recycling operation in North America. Currently only Portland International Jetport in Maine is producing recycled ADF within the US, and that project is a fraction of DEN's scale. Similar systems are in place in Calgary and Montreal, but DEN's project will be twice the size of those applications. Airlines operating at DEN are likely already using ADF made from recycled glycol at other stations, and this initiative allows our partners to realize the advantages of these operations at DEN's scale.
- DEN is in the process of executing a contract to upgrade and operate the Aircraft Deicing System for a period of 15 years, with construction scheduled to begin late in 2021.