

**APPENDIX I.S - Storm Water Discharges Associated with Industrial Activity from Vehicle Maintenance Areas, Equipment Cleaning Areas, or Deicing Areas Located at Air Transportation Facilities**

A. Coverage of This Section.

1. Discharges Covered Under This Section. The requirements listed under this Part shall apply to storm water discharges from the following activities:

**Table I.S.1 – Sector S: Vehicle Maintenance Areas, Equipment Cleaning Areas, or Deicing Areas Located at Air Transportation Facilities**

SIC Code	Activity Represented
4512 – 4581	Air Transportation Facilities

2. Sector Specific Limitations on Coverage. In addition to the limitations on coverage listed in *Part I.C*, the following storm water discharges associated with industrial activity are **not** authorized by this permit:
- Discharges other than those from portions of the air transportation facility that are involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling and lubrication), equipment cleaning operations, or deicing operations. Deicing in this permit shall generally be used to mean both deicing (i.e. removal of frost, snow, or ice) and anti-icing (i.e. preventing accumulation of frost, snow, or ice) activities, unless specific mention is made otherwise.
3. Sector Specific Prohibition of Non-Stormwater Discharges. In addition to those non-storm water discharges prohibited under *Part I.D*, this permit does not authorize the discharge of:
- Aircraft, ground vehicle, runway, and equipment wash waters;
  - Dry weather discharge of deicing chemicals. Note that a discharge resulting from snowmelt is not a dry weather discharge.

B. Sector Specific Control Measures and Effluent Limits.

In addition to the control measures and effluent limits in *Part III*, the permittee shall implement the following to minimize pollutant discharges, as applicable:

1. Good Housekeeping. Good housekeeping measures, such as the following, shall be used to minimize potential sources of pollutants in stormwater at the facility:
- Aircraft, Ground Vehicle, and Equipment Maintenance Areas. The permittee shall minimize the contamination of stormwater from all areas used for aircraft, ground vehicle and equipment maintenance (including the maintenance conducted on the terminal apron and in dedicated hangars) through implementation of control measures, such as the following, where feasible (taking into consideration safety, space, operational constraints, and flight considerations):
    - Performing maintenance activities indoors;
    - Maintaining an organized inventory of materials used in the maintenance areas;
    - Draining all parts of fluids prior to disposal;
    - Prohibiting the practice of hosing down the apron or hanger floor;

- 5) Using dry cleanup methods; and
  - 6) Collecting the stormwater from the maintenance areas and providing treatment or recycling.
- b. Aircraft, Ground Vehicle, and Equipment Cleaning Areas. The permittee shall minimize the contamination of stormwater from cleaning areas through demarcating these areas using signage or other appropriate means.
- c. Aircraft, Ground Vehicle, and Equipment Storage Areas. The permittee shall minimize the contamination of stormwater from all storage areas used for aircraft, ground vehicle and equipment awaiting maintenance through implementation of control measures, such as the following, where feasible (taking into consideration safety, space, operational constraints, and flight considerations):
- 1) Storing aircraft and ground vehicles indoors or other designated areas;
  - 2) Using drip pans for the collection of fluid leaks; and
  - 3) Perimeter drains, dikes or berms surrounding the storage areas.
- d. Material Storage Areas. The permittee shall minimize the contamination of stormwater from all material storage areas used for aircraft, ground vehicle and equipment awaiting maintenance through implementation of control measures, such as the following, where feasible (taking into consideration safety, space, operational constraints, and flight considerations):
- 1) Maintaining the vessels of stored materials (i.e. used oils, hydraulic fluids, spent solvents, and waste aircraft fuel) in good condition;
  - 2) Plainly labeling the vessels (i.e. “used oil,” “Contaminated Jet A”);
  - 3) Storing materials indoors;
  - 4) Storing waste materials in a centralized location;
  - 5) Installing berms or dikes around storage areas.
- e. Airport Fuel System and Fueling Areas. The permittee shall minimize the discharge of pollutants in stormwater from airport fuel system and fueling areas through implementation of control measures, such as the following, where feasible (taking into consideration safety, space, operational constraints, and flight considerations):
- 1) Implementing spill and overflow practices (i.e. placing absorptive materials beneath aircraft during fueling operations);
  - 2) Using only dry cleanup methods; and
  - 3) Collecting stormwater.
- f. Source Reduction. The permittee shall minimize the use of urea and glycol-based deicing chemicals to reduce the aggregate amount of deicing chemicals used that could add pollutants to stormwater discharges.
- g. Runway Deicing Operations. The permittee shall minimize the discharge of pollutants in stormwater from runway deicing operations through implementing source reduction control measures, such as the following, where feasible (taking into consideration safety, space, operational constraints, and flight considerations):
- 1) Metered application of chemicals;

- 2) Pre-wetting dry chemical constituents prior to application;
  - 3) Installing a runway ice detection system;
  - 4) Implementing anti-icing operations as a preventive measure against ice buildup;
  - 5) Heating sand;
  - 6) Product substitution. Chemical options to replace pavement deicers (urea or glycol) may include potassium acetate, magnesium acetate, calcium acetate, and anhydrous sodium acetate;
  - 7) Mechanical systems (i.e. snow plows, brushes);
  - 8) Conveying contaminated stormwater into swales or an impoundment; and
  - 9) Pollution prevention practices such as ice detection systems, and airfield prewetting.
- h. Aircraft Deicing Operations. The permittee shall minimize the discharge of pollutants in stormwater from aircraft deicing operations through implementing source reduction control measures, such as the following, where feasible (taking into consideration safety, space, operational constraints, and flight considerations):
- 1) Determining whether excessive application of deicing chemicals occurs and adjusting as necessary, consistent with considerations of flight safety;
  - 2) Use alternatives to glycol;
  - 3) Containment measures for applied chemicals;
  - 4) Forced-air deicing systems;
  - 5) Computer-controlled fixed-gantry systems;
  - 6) Infrared technology;
  - 7) Hot water;
  - 8) Varying glycol content to air temperature;
  - 9) Enclosed-basket deicing trucks;
  - 10) Mechanical methods;
  - 11) Solar radiation;
  - 12) Hangar storage;
  - 13) Aircraft covers;
  - 14) Thermal blankets for MD-80s and DC-9s;
  - 15) Using ice- detection systems and airport traffic flow strategies and departure slot allocation systems;
  - 16) Installing a centralized deicing pad to recover deicing fluid following application;
  - 17) Plug- and-pump (PnP);
  - 18) Using vacuum and collection trucks (i.e. glycol recovery vehicles);
  - 19) Storing contaminated stormwater and deicing fluids in tanks;
  - 20) Recycling collected deicing fluid where feasible;

- 21) Releasing controlled amounts to a publicly owned treatment works;
  - 22) Separation of contaminated snow;
  - 23) Conveying contaminated stormwater into an impoundment for biochemical decomposition (be aware of attracting wildlife that may prove hazardous to flight operations); and
  - 24) Directing stormwater into vegetative swales or other infiltration measures.
- i. Management of Stormwater. When applying deicing fluids during non-precipitation events (also referred to as “clear ice deicing”), the permittee shall implement control measures to prevent unauthorized discharge of pollutants (dry-weather discharges of pollutants would need coverage under a *UPDES* wastewater permit), or to minimize the discharge of pollutants from deicing fluids in later stormwater discharges, the permittee shall implement control measures, such as the following, where determined to be feasible (taking into consideration safety, space, operational constraints, and flight considerations):
- 1) Recovering deicing fluids;
  - 2) Preventing the fluids from entering storm sewers or other stormwater discharge conveyances (i.e. covering storm sewer inlets, using booms, installing absorptive interceptors in the drains);
  - 3) Releasing controlled amounts to a publicly owned treatment works; and
  - 4) Recycling deicing fluid whenever practicable.
- j. Deicing Season. The permittee shall determine the seasonal timeframe (i.e. December through February, October through March) during which deicing activities typically occur at the facility and implement control measures particular to the facility.

C. Sector Specific Inspection Requirements.

In addition to the inspection requirements in *Part IV.A*, the permittee shall also inspect the following activities, if they take place at the facility:

1. Deicing Season. The permittee shall increase inspection frequency to **at least monthly** during the deicing season, as identified in *Part B.1.j* of *Appendix I.S*. If the facility needs to deice before or after this period, the monthly inspection requirement shall be expanded to include all months during which deicing chemicals are used.

D. Sector Specific Plan Requirements.

1. Site Map. In addition to the requirements in *Part VII.D.3*, the site map shall also include the location of the following, if applicable:
  - a. Aircraft and runway deicing operations areas;
  - b. Aircraft, ground vehicle and equipment maintenance and cleaning areas; and
  - c. Storage areas for aircraft, ground vehicles and equipment awaiting maintenance.
2. Summary of Potential Pollutant Sources. In addition to the requirements in *Part VII.D.4*, the Plan summary of potential pollutant sources inventory shall also include the following, as applicable:
  - a. Aircraft, runway, ground vehicle and equipment maintenance and cleaning; and
  - b. Aircraft and runway deicing operations (including apron and centralized aircraft deicing stations, runways, taxiways and ramps).

- c. All deicing chemicals, not just glycols and urea (i.e. potassium acetate), because large quantities of these other chemicals can still have an adverse impact on receiving waters. For any deicing chemicals used:
  - 1) A record of the types of chemicals, including the safety data sheets; and
  - 2) Monthly quantities, either as measured or, in the absence of metering, using best estimates.
- 3. Vehicle and Equipment Wash Water Requirements. If wash water is handled in a manner that does not involve separate *UPDES* permitting or local pretreatment requirements (i.e. hauled offsite or retained onsite), the permittee shall describe in the Plan the disposal method and include all pertinent information, to include:
  - a. The frequency of the disposal;
  - b. The estimated volume of the disposal; and
  - c. The final destination where disposal will be sent.
- 4. Measures and Controls. In addition to the requirements in *Part VII.D.5*, the Plan shall also include measures implemented to address the following activities and sources, as applicable:
  - a. Collecting or containing contaminated melt water from collection areas used for disposal of contaminated snow.

E. Monitoring Requirements.

- 1. Analytical Benchmark Monitoring. The following analytical benchmark monitoring parameters shall apply specifically to sector S facilities if the permittee meets the deicing chemical usage thresholds of 100,000 gallons glycol or 100 tons of urea or more on an average annual basis. Parameters found in this Part apply to both primary industrial activities and any co-located industrial activities.

**Table I.S.2 – Analytical Benchmark Monitoring Parameters for Airports Where More Than 100,000 Gallons of Pure Glycol in Glycol-Based Deicing Fluids or 100 Tons or More of Urea on An Average Annual Basis (SIC 4512 – 4581)**

Parameter	Benchmark Monitoring Concentration
Biochemical Oxygen Demand	30 mg/L
Chemical Oxygen Demand	120 mg/L
Ammonia	2.14 mg/L
pH	6.0 – 9.0 s.u.

<sup>1</sup> The permittee shall only be required to conduct analytical benchmark monitoring at the discharge points that receive stormwater from deicing operations. Analytical benchmark monitoring shall be conducted during the deicing season, as identified in *Part B.1.j of Appendix I.S*, and in accordance with *40 CFR 449.11(a)*.

- 2. Numeric Effluent Limitation Monitoring. Numeric effluent limitation monitoring shall be required for sector S facilities conducting certain industrial activities. The concentration of pollutants in stormwater discharges, independent of comingling, as discussed in *Part V.C.2*, shall not exceed the following effluent limitations at any time during the duration of permit coverage.

**Table I.S.3 – Numeric Effluent Limitation Monitoring Parameters**

<b>Industrial Activity</b>	<b>Parameter</b>	<b>Effluent Limitation</b>
Runoff containing urea from airfield pavement deicing at existing and new primary airports with 1,000 or more annual non-propeller aircraft departures	Ammonia as Nitrogen	14.7 mg/L, daily maximum

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