



Title	ES-301-4.06 Pavement Deicing
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1) Activity Description: Pavement Deicing

Application of deicing and anti-icing materials to pavement.

2) Potential Environmental Risks

A. The following environmental concerns are associated with these activities:

- i) Overuse and/or inappropriate application of deicing fluids
- ii) Improper or inappropriate disposal of off-specification or waste deicing fluids
- iii) Odors
- iv) Contamination of soil
- v) Contamination of surface water
- vi) Contamination of groundwater
- vii) Air pollution (from sand)

B. Potential consequences from performing the activity incorrectly:

- i) Property damage, personal injury or damage to the environment
- ii) Regulatory and judicial enforcement actions and related [financial & non-financial] penalties

3) Critical Operating Requirements

A. Prohibited Activities

- i) Improper disposal of deicing or anti-icing fluids.
- ii) Overuse or improper use of deicing chemicals.
- iii) Noncompliance with the Stormwater Management Plan (SWMP).
- iv) Use of organic-based fluids on landside.
- v) Use of chloride-based fluids on airside.
- vi) Use of urea.

B. Approved Products

- i) The only approved products for application on airside surfaces at DEN are Glycol-based fluids, potassium acetate, potassium formate, sodium acetate, and sodium formate.
- ii) The only approved products for application on landside surfaces at DEN are chloride-based products.

C. General Considerations

- i) Each operator and tenant conducting chemical storage activities is responsible for understanding the applicable regulations and managing their activities accordingly; this Environmental Guideline is meant as guidance only and does not supersede any regulations.
- ii) Use appropriate deicing and anti-icing products for the application and understand the specifications for choosing an appropriate deicing product.
- iii) Stormwater contaminated with pavement deicers used on landside are covered under the City's MS4 permit. Stormwater contaminated with pavement deicers used on airside (for

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industrial activities) are regulated under DEN's Industrial Stormwater Permit. Neither permit allows the discharge of pavement deicers to the MS4 or State Waters unless it is associated with a precipitation event.

D. Training Requirements

- i) Employee training programs shall inform personnel at all levels of responsibility who are involved in industrial activities that may impact Stormwater runoff. Training shall address topics such as spill response, good housekeeping, and material management practices. Contractor or temporary personnel shall be informed of plant operation and design features in order to prevent discharges or spills from occurring.

E. Storage and Materials Management Requirements

- i) Utilize appropriate spill prevention equipment for containers, vessels, hoses, transfer areas, etc. Store all deicing and anti-icing fluids in containers in good condition, and indoors if possible. When stored outdoors, storage areas should be managed to minimize the potential for spills/leaks or exposure to precipitation resulting in a discharge to State waters.
- ii) Do not waste fluid:
 - a) The amount of the deicing agent applied should be appropriate to the need and not excessive. The actual quantity and mix of deicing agent applied is at the discretion of the operator.

4) Planning Requirements

- A. Develop and implement a training program to train deicing staff in the proper use and application of deicing and anti-icing materials.
- B. Maintain adequate supplies of spill response equipment and materials in accessible locations where spills are likely to occur.
- C. All airside deicing staff should be trained on the requirements of the Stormwater Management Plan (SWMP) prior to conducting any airside anti-icing or deicing activities.
- D. Complete the Stormwater Management Plan (SWMP) survey/matrix to assist in determining if a SWMP is required for the activity. This document is available at: <https://www.flydenver.com/sites/default/files/environmental/stormWaterMP.pdf>. If applicable, the operator will need to decide whether to use the DEN SWMP or generate their own SWMP for review by DEN ES

5) Critical Tasks

- A. Tenants shall comply with pavement deice material requirements in DEN Rules and Regulations, Part 40.

6) Emergency Response

- A. If a spill occurs, refer to Environmental Guideline ES-301-5.02 Spill Response.

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- i) Call DEN Communications Center immediately at 303-342-4200 for all spills.
- ii) Control spills to minimize property damage and eliminate imminent risk to human health and the environment.
- iii) Spills of any kind shall not be washed into any sewer or waterway, or onto any soils.
- iv) Containerize all collected wastes and evaluate for proper labeling, storage, and disposal. Refer to ES-301-6.01 through 6.06 for guidance on waste management.

7) Inspection and Maintenance Requirements

- A. Maintain equipment according to the manufacturer’s recommended maintenance schedule.
- B. Routinely inspect sumps, catchment basins, trench drains, and pretreatment devices that potentially receive fluids from pavement deicing; clean/maintain as necessary.

8) Expected Records and Outputs

- A. SDSs and Chemical Use Records
 - i) Purchase and use records for deicing fluids should be maintained at Field Maintenance.
 - ii) Purchase and use records for deicing fluids should be maintained at each tenant facility.
- B. Evidence of training on SWMP, SPCC Plan, and Operator SOPs, as applicable
 - i) While formal certifications are not always necessary, some form of “proof of training” (such as sign-in sheets and handouts) is expected and should be maintained on file by the operator.
- C. DEN Stormwater Management Plan (SWMP) survey/matrix.
 - i) Obtain a copy of this document at:
<https://www.flydenver.com/sites/default/files/environmental/stormWaterMP.pdf>.
 Complete form and return to DEN ES for evaluation.
 - ii) Maintain survey/matrix on file after review by DEN ES.
- D. Spill and release records for any spills
 - i) Responsible party (for the spill) notifies DEN Communications Center at 303-342-4200.

9) References

- A. Phone Numbers
 - i) DEN Communications Center (for spill reporting) (303) 342-4200
 - ii) DEN Environmental Services (Main Line) (303) 342-2730
 - iii) Kimberly Ohlson (DEN Environmental Services) (303) 342-2637
 - iv) Keith Pass (DEN Environmental Services) (303) 342-2689
 - v) Craig Schillinger (DEN Environmental Services) (303) 342-2834
 - vi) FAA Weather Contractors (B-Tower) (303) 348-4177
- B. Related Environmental Documents (list is not limited to the following)
 - i) ES-301-5.02 Spill Response

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- ii) ES-301-6.01 General Waste Management
- C. Guidance Materials (list is not limited to the following)
 - i) DEN Stormwater Management Plan
 - ii) Deicing fluid and application equipment manufacturers specs
 - iii) FAA Advisory Circular No. AC 150/5200-30A Airport Winter Safety and Operations
 - iv) DEN Operations Snow Plan
 - v) DEN Manager's Bulletins
- D. Training Materials (list is not limited to the following)
 - i) ES-303-1.01 Stormwater Pollution Prevention Training
- E. Applicable Regulations (list is not limited to the following)
 - ii) DEN Rules and Regulations, Part 40 – Conduct of Tenants Using the Airport
 - iii) 40 CFR 122-124 NPDES Regulations for Stormwater Discharges

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