

AIRCRAFT DEICING OPERATIONS

BMP FACTSHEET 14 Rev. 04/2023



DESCRIPTION

Many facilities on Fort Belvoir operate aircraft and other types of equipment that must be deiced during the colder months. It is very important to follow proper procedures when handling, applying and storing deicing materials so they **do not** come into contact with stormwater. If proper procedures and precautions are not followed, harmful pollutants can migrate by means of stormwater run-off into our natural waterways. The compounds found in many deicing agents (such as glycols and ethylene glycol) pose a threat to receiving waters due to their high biochemical oxygen demand (BOD). Essentially these compounds deplete oxygen levels in the water and deprive aquatic life of oxygen, as well as being toxic to many types of aquatic and mammalian organisms. They are also hazardous air pollutants as defined under the Clean Air Act. SafeTemp ES Plus is an aircraft deicing agent used at Fort Belvoir which contains propylene glycol. Propylene glycol can contribute to harmful nutrient loading so it is very important when using products like SafeTemp ES Plus to follow product guidelines **and only use the minimal amount needed.**

Targeted Pollutants

Sediment	X
Nutrients	
Trash	
Metals	X
Bacteria	
Oil & Grease	
Chemicals	
Salt	X

Objectives

Cover	X
Contain	X
Educate	X
Reduce/Minimize	X
Product Substitution	

APPLICATION OF ANY DEICING AGENTS CONTAINING UREA OR ETHYLENE GLYCOL OR OTHER FORMS OF NITROGEN OR PHOSPHOROUS TO PARKING LOTS, ROADWAYS, RUNWAYS, SIDEWALKS OR OTHER PAVED SURFACES IS PROHIBITED per the two stormwater permits issued to Fort Belvoir by Virginia Department of Environmental Quality. See Fort Belvoir Policy Memo #71 for more details.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY GUIDELINES

Virginia Department of Environmental Quality (VADEQ) states that if a facility uses deicing material, the facility must comply with the following:

- During deicing season, Industrial Stormwater facilities are required to increase their self-inspections frequency from quarterly to monthly.
- Deicing record is required and must include the following:
 - ⇒ Time and date of deicing material
 - ⇒ Application
 - ⇒ Quantity of deicing material used per event
 - ⇒ SDS of deicing materials
 - ⇒ Amount recovered of deicing materials
- VADEQ requires a minimum of 60% recovery of the product applied.

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GUIDELINES (continued)

- Keep good housekeeping practices. Reference BMP Factsheet Overview for more details.
- Store, handle and apply deicing/anti-icing materials in a manner consistent with chemical/product specific instructions provided by the manufacturer on the Safety Data Sheet (SDS).
- Restrict deicing/anti-icing material storage and handling to trained personnel only.
- If possible, perform handling and application operations of deicing materials away from storm drains or temporarily block nearby drains.
- Clean areas following deicing/anti-icing material transfers.
- Use only enough deicing/anti-icing chemicals to ensure safe operation of aircraft. Excess chemicals add to storm water contamination from drip and shear of deicing/anti-icing chemicals.
- Avoid overspray of deicing/anti-icing chemicals.
- Perform aircraft deicing/anti-icing only in the approved designated areas or aircraft hangers.
- Provide for the immediate clean-up of deicing pads following deicing activity.

MAINTENANCE/GOOD HOUSEKEEPING

General Storage Protocols:

- Store deicing and anti-icing materials within designated contained areas. Ideally these areas should be away from direct traffic routes to prevent accidental spills. See Salt Storage BMP Factsheet 4 for more information.
- Where possible, store deicing/anti-icing materials indoors or in a sheltered area.
- Surface on which materials are stored must be free of cracks or holes and it must be able to handle the weight of the materials.
- Avoid storing materials close to storm drains.
- Store materials in a manner consistent with chemical/product specific instructions provided by the manufacturer on the Safety Data Sheet (SDS).
- Make sure all containers are labeled properly and lids are secure. Routinely inspect containers and tanks for leaks or signs of corrosion.
- Maintain adequate supplies of spill response equipment (spill kits) in storage locations and make sure it is easily accessible.
- Ensure material storage containers have **secondary containment** and all drain plugs are in place and not leaking.
- **Secondary containment:** The purpose of secondary containment is to prevent deicing products like propylene glycol from flowing onto the ground or into the water in the event of a spill at an AST facility. Spill containment measures, including secondary containment, are required by the Environmental Protection Agency (EPA) at AST facilities. Secondary containment:
 - ⇒ Must be large, high and strong enough to hold the contents of the largest tank plus 10% for local precipitation.
 - ⇒ Must be constructed or lined with material that will hold deicing products and prevent them from seeping into the ground.
 - ⇒ The liner should be covered with sand or gravel to prevent ripping and to provide protection from the weather.
 - ⇒ Double walled aboveground storage tanks are not required to be located within a secondary containment area provided they have a high liquid level alarm, and a flow restrictor or automatic shut off device.
 - ⇒ *Secondary containment structures* must allow inspections of the tanks or containers, the timely detection of any leaks and recovery of any spillage, and the removal and proper disposal of any captured precipitation so the minimum required capacity is maintained at all times.

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SPILL PREVENTION

Common causes of spills at facilities include:

- **Operator error**
 - ⇒ Container overfilled
 - ⇒ Containers left open
 - ⇒ Poor transfer procedures
 - ⇒ Lack of product monitoring
 - ⇒ Potential problems not recognized
 - ⇒ Poor maintenance practices
- **Storage Tank Problems**
 - ⇒ Tank design and construction
 - ⇒ Inadequate foundation or tanks sitting directly on the ground
 - ⇒ Tank bottom and seams rusted, shell pitted, weeping or leaking

SPILL RESPONSE

In the event of a salt spill for when deicer has not reached storm drain

- Survey the incident to identify the source of release
- Stop the source
- Use absorbent pads and booms to collect deicer
- **DO NOT WASH DEICING MATERIALS DOWN STORM DRAINS OR DISCHARGE STORMWATER CONTAMINATED WITH DEICING MATERIAL INTO STORM DRAIN**

SPILL RESPONSE PROCEDURES

In the event of a spill or leak, follow the appropriate Spill Response Procedures posted at your facility or refer to the BMP Factsheet Overview.

- **Survey the incident** from a safe distance. Identify the source of release and the material being released.
- Call the Ft. Belvoir Fire Department if spills are greater than 5 gallons OR greater than 5 square feet. If ANY amount of leaked material has entered a storm drain or waterway call the Ft. Belvoir Fire Department at 703-781-1800 and DPW Environmental Division (Env. Div.) at 703-806-3694.
- Provide the Safety Data Sheet of the spilled material to the spill response personnel.
- Fill out Spill Incident Report in your SWPPP.
- **REPORT ALL SPILLS REGARDLESS OF SIZE TO DPW/ENV. DIV.**

REPORT SPILLS TO DPW/ENV. DIV. BY:

- E-mailing your Spill Incident Report to zachary.d.witman.civ@army.mil
- Calling 703-806-3694