

Processes That May Impact Water Quality At LaRC

NASA Langley Research Center (LaRC) is located within the Chesapeake Bay Watershed. This watershed ranges from New York to southern Virginia and is approximately 64,000 square miles with 11,600 miles of shoreline. In order to comply with various water quality regulations, LaRC operates under three water discharge permits that set limits on the amounts of pollutants and types of wastewater that is allowed to leave LaRC's property. LaRC continues to educate personnel on impacts of processes and additional ways to reduce water pollution from everyday activities, including water that may be generated or handled during maintenance or mechanical processes.

What Impacts To The Environment Should I Be Aware Of?

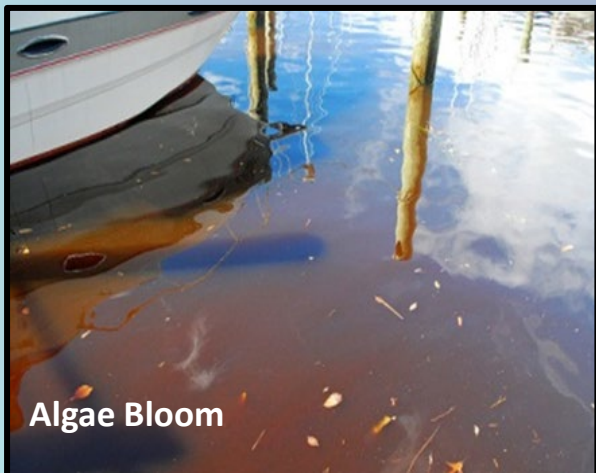
A significant portion of the Chesapeake Bay is considered impaired due to pollution. By working to reduce the amount of sediment and nutrients generated by daily work or maintenance processes, LaRC can lessen the number of pollutants discharged into the environment.

Excess Sediment

Excess sediment, whether it is suspended or deposited in the waterway, can cause adverse impacts. Suspended sediment blocks light for underwater grasses resulting in oxygen reduction, while deposited sediment has the capability to clog ports and channels. The EPA estimates that approximately 20 to 150 tons of soil per acre per year are lost from construction activities alone, making construction activities a large source of excess sediment.



Excess Nutrients



Algae Bloom

Excess nutrients refer to phosphorus and nitrogen, commonly found in fertilizers. An excess of these nutrients can cause algal blooms that reduce oxygen levels in the water. Some species of algae have the capability to produce toxins during these blooms that can sicken or potentially kill wildlife.

Best Management Practices (BMPs): Daily or Maintenance Activities

What Maintenance Activities Should I Be Aware Of?

Examples of activities at LaRC that may impact water quality include grass cutting, draining of cooling towers and boilers, washing of equipment, chiller tubes and pumps, and dewatering of basements, utility tunnels, and sumps. The water may be chemically treated or carry harmful pollutants like oils or metals and should not be drained to a stormwater connection. Grass clippings may contain excess nutrients and should be prevented from going into stormwater connections.

Here's How You Can Prevent Harmful Products From Entering The Storm Drain System:

Draining Mechanical Systems:

Coordinate with LaRC Environmental prior to draining any mechanical systems (cooling towers, boilers, closed-loop systems, etc.) to ensure you have the proper permissions and knowledge of where drainage is permitted to go. Do not discharge water to the ground or any utility connection without receiving permission first. Notify LaRC Environmental if the water contains chemicals, metals, or has an oily sheen.



Dewatering Flooded Areas:

When dewatering an excavated hole, flooded basement, utility tunnel, or sump, use methods that prevent sediment from being discharged. Dewatering bags are great at capturing sediment. If the water has an oily sheen, do not drain it.

Working Around Floor Drains And Sumps:

When working in a facility with stormwater connections (floor drains and/or sump pumps) be aware of any potential risks (drum storage, water infiltration, leaky equipment, etc.) and take steps to prevent liquids such as oils and chemicals from entering the storm system through those connections. If you're not sure where a drain goes, contact LaRC Environmental or the Facility Coordinator.

Remember: LaRC's storm systems are highly regulated. Do not discharge water to the ground or any utility connection without first receiving approval from LaRC Environmental. Materials in storm drains flow directly into our watershed without any treatment.

Best Management Practices (BMPs): Daily or Maintenance Activities

Environmental Review and Approvals via the NASA Langley Form 461



Facility and infrastructure projects and research and development (R&D) projects conducted on federal property or funded with government dollars must be reviewed for potential environmental impacts **prior** to commitment of government resources to implement the project, including contract or grant award.

The LF 461 serves as LaRC's work induction system to complete the necessary review of programs/projects/equipment to ensure compliance with environmental requirements (Federal/state/local laws, regulations, Executive Orders, etc.). The form, a list of excluded activities, and more information can be found on the [LF 461 website](#).

Any operation, project, new, or existing equipment that will drain wastewater, change water-generating processes, drain equipment (closed loop chiller systems, cooling towers, etc.) or piping, or use a new product in an existing system must submit a LF 461.

Sufficient detail of the project, such as a scope of work and/or other project documents, must be attached to the completed LF 461. Maps are also required for any projects that involve obtaining a dig permit.

Not following the LF 461 review process/requirements places LaRC at risk for non-compliance. Potential consequences of non-compliance with requirements include termination or delay of a project, as well as potential fines and penalties.

Examples requiring LF 461 Include:

Installation of new equipment (chillers, boilers, generators, etching equipment, water-cooled equipment, side-stream filtration, other R&D equipment, etc.)

Building or equipment additions and modifications

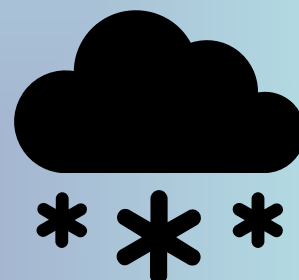
Excavation/underground utility work (dig permits)

ADDITIONAL REMINDERS

Winter Clean-up And Deicing:

Shovel or plow as much as possible prior to applying deicer. When disposing of snow and ice do not dump in a wetland, near a waterway, or on top of storm drains.

Regulatory Requirement: Deicing agents containing urea or other forms of nitrogen or phosphorous are **NOT ALLOWED** for any reason. These are major contaminants of aquatic ecosystems.



ILLICIT DISCHARGE:

Illicit discharge means any non-stormwater flow to the storm drain system. Illicit discharges can be caused by activities such as power washing with detergents, painting operations (paint scraping, cleaning paint brushes, etc.) and concrete cutting. Liquids generated during equipment draining such as oil, lubricants, oily water, or chemically-treated water as well as leaking dumpsters may also result in an illicit discharge.

**Clean condensate is not considered an illicit discharge and should always be drained to storm or the ground. Do not drain clean condensate to a bioretention feature or the sanitary sewer system

LaRC Environmental Office Water Program Contact Information:

Call: Ande Remington 4-8332, Sarat Calamur 4-4791, or Jazmin Argarin 4-7031

Email*: ande.remington@nasa.gov, sarat.c.calamur@nasa.gov, or jazmin.m.argarin@nasa.gov

*If you choose to report water-quality concerns via email, please include as much information as possible (location, time, photos, etc.)

Spills: Danger to human health, or release to the environment?

Call 911 (Center land line) or 757-864-2222 (cell)