

# Foam Fire Suppression Systems Industry Updates

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# Outline

1. Environmental Impacts of Foam Solution Discharge
2. Considerations for Use of Fluorine-Free Foams
3. Aerosol Foam Suppression System



Courtesy of Suncor Base Plant

# Environmental Impacts of Foam Solution Discharge

## Challenges with Handling Foam Solution in Wastewater Treatment Plants:

- Fuel Contamination
- Excessive Foaming
- Shock Loading Due to Foam High BOD



Source: <https://bg.techsymptom.com>

# Environmental Impacts of Foam Solution Discharge

## Impacts of Foam Solution Discharge on Natural Bodies of Water:

- Persistence – low biodegradability
- Formation of algae bloom
- Toxicity to marine life
- Excessive Foaming
- Contamination of underground water & drinking water supplies
- Serious health effects in humans (e.g. cancer, immunotoxicity)



# Considerations for Use of Fluorine-Free Foams

## Advantages of fluorine free foams:

- Less Toxicity
- More Biodegradability
- Less Nuisance Foaming



Source: <https://www.fireresponse.com.au>

# Considerations for Use of Fluorine-Free Foams

## Historical Challenges:

- Additional cost for retrofit application
  - Cost of disposal of existing AFFF foams
  - Cost of equipment replacement
- Higher application rate required
- Slower in controlling fire
- ULC listing still in process



Source: [www.lastfire.org.uk](http://www.lastfire.org.uk)

## Recent Progress:

Performance of fluorine-free foams have drastically improved over the past 3-4 years.

# Considerations for Use of Fluorine-Free Foams

- More legislations are being passed around the world to push for use of fluorine free foams.
- Washington, Colorado and Minnesota states are planning to ban the manufacturing, sale and distribution of Fluoro-surfactant foam agent in 2020-2021.



Source: [www.greenbiz.com](http://www.greenbiz.com)

# Aersol-Foam Suppression System

Average of 5 large Reservoir Fires per year

Average Burn time: 22hours

Resulting major losses and Environmental  
Impact

Even if the tank is pump dry this takes several  
hours



**Aerosol Foam Delivery**  
**NFPA 11 & 2010**



# Aerosol-Foam Suppression System



# Aerosol-Foam Suppression System Deliverables

1. Fast delivery 500 L/s-700 L/s = 7925-11095 G/M
2. Foam bubbles inert gas
3. No need for Firewater or Fire pumps (Pre-mix Solution)
4. Can use any manufacture Foam even Furlorine-Free
5. Skid mounted Plug and play solution can use existing pipework
6. Effective when up to 70% of the infrastructure has been destroyed by explosion
7. Space-age Technology many applications
8. Tested in sub-zero temperatures

# Aerosol-Foam Suppression System The Plan

Alberta Manufacturing, Testing and Export Facility

# Aerosol-Foam Suppression System Help and Support

1. Letters of interest and support to develop this technology
2. Canadian test site.
3. Pilot Project
4. Marketing and Costing

# Thanks for Listening!

## Questions?