# Trade Waste Officers Workshop
# Fluorine Free Foam (FFF) Transition


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# Introduction and outline

- Who am I and what do I do at FENZ?
- FENZ overview
- Use of Class B foams at FENZ - timeline
- Fluorine free foam transition
  - Operational foam info and distribution
  - Regulatory timeframes and implications
- Training foam
  - What is it?
  - Why do we have it?
  - How do we want to use it?

# Fire and Emergency NZ overview

5 Regions

17 Districts

640 brigades, 660 appliances (red fleet)

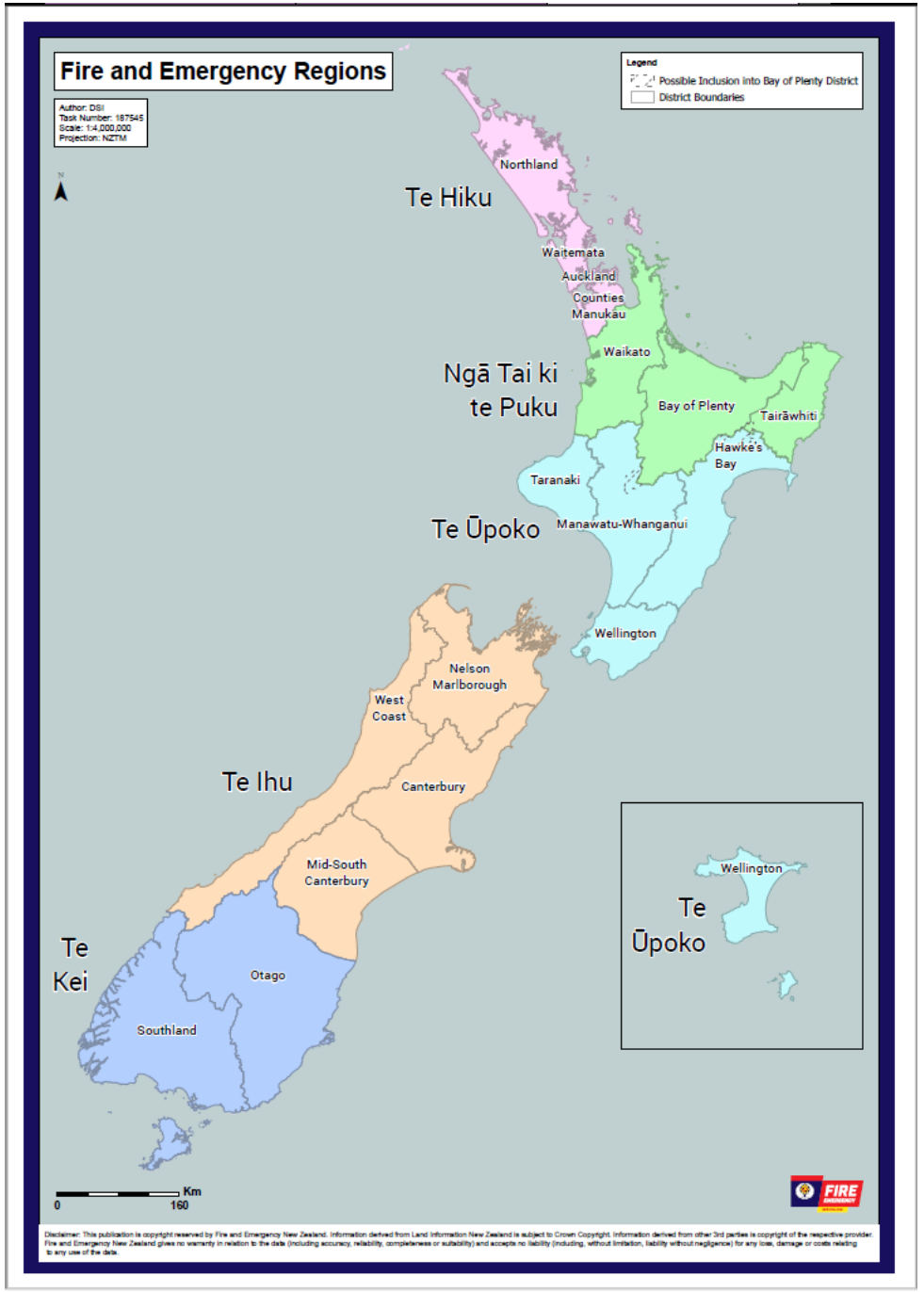
1800 career firefighters

8500 volunteer firefighters

3300 volunteer support (brigade and ops)

88,000 incidents attended

98,000 emergency calls answered (year ending 30 June 23)



# Use of Class B foam at FENZ timeline

| | |
|---|---|
| June 2017 | Moratorium placed on training/non-emergency use of Class B foam |
| Dec 2017 | Operational use of Class B PFAS foam restricted to only approved products (no PFOS or PFOA) |
| 2018 | Non-approved foams removed from stations and collected for disposal |
| Dec 2020 | Updated HSNO Group Standard enters into force setting timeline for PFAS foam withdrawal |
| 2021 | Replacement foam selection and procurement |
| 2022 | National rollout of fluorine free foam, PFAS foam collected for disposal |
| Dec 2022 | Transition to fluorine free foam completed across all stations, all PFAS foam removed from service |

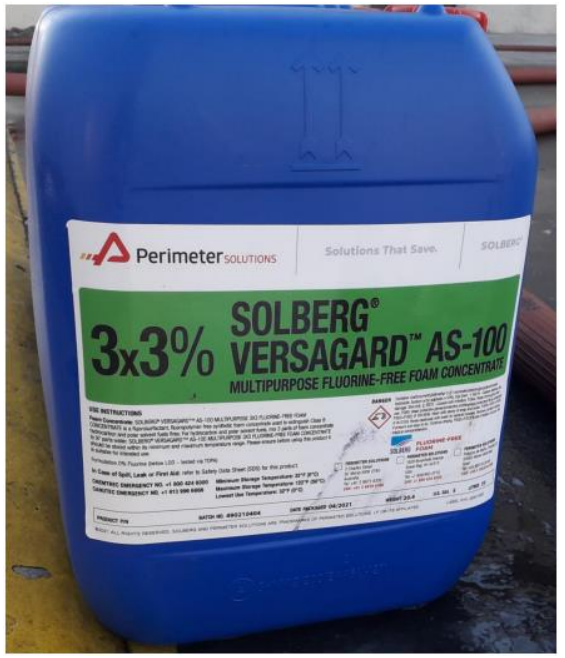
# FFF Transition - operational information and distribution

## Our new FFF is Solberg Versagard AS-100 3x3%

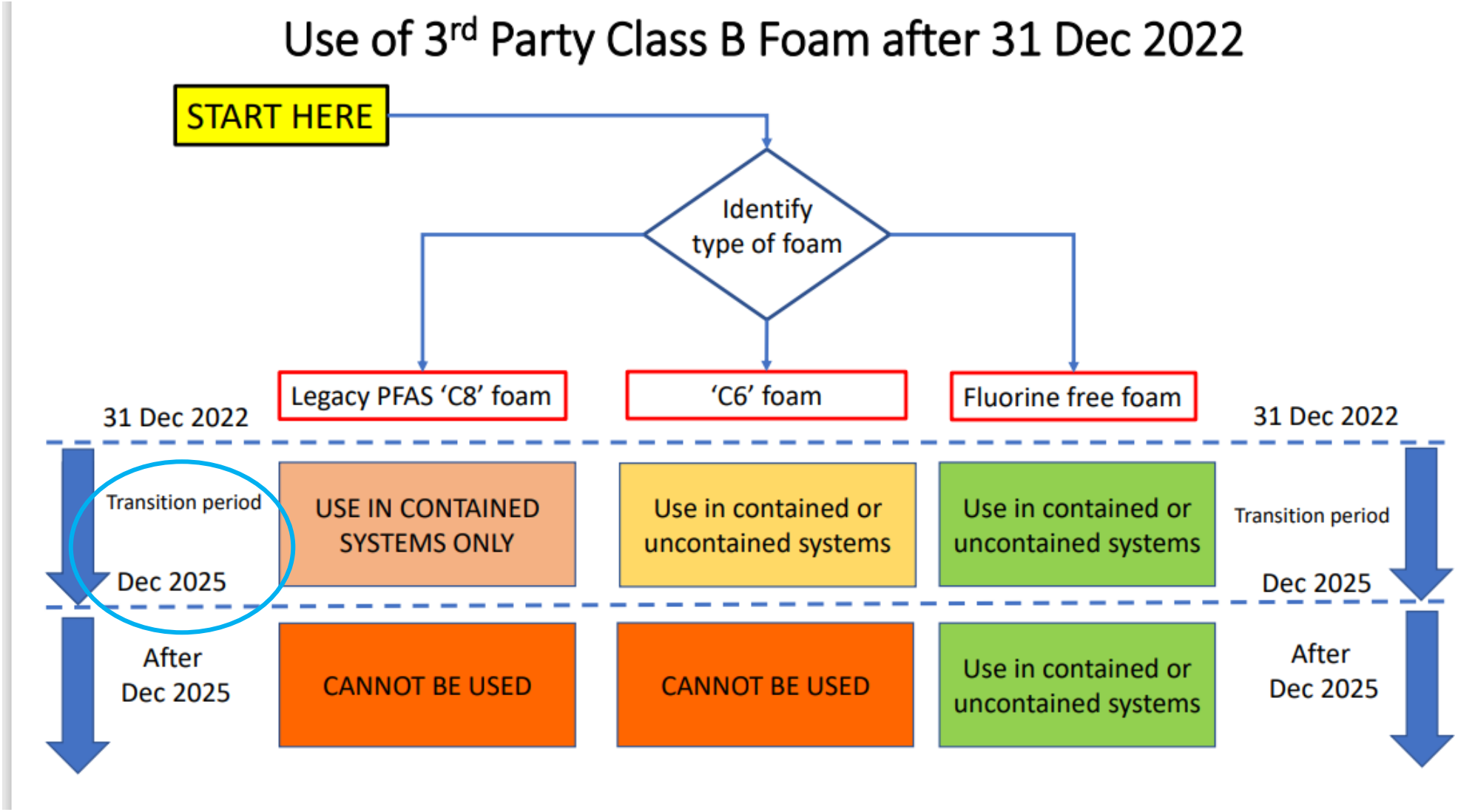
- Alcohol-resistant foam used at 3% proportioning
- GreenScreen Certified®
- Single foam product across all FENZ stations
- 1 litre of foam concentrate
  - ➢ approx. 33 litres of 3% foam solution
  - ➢ 225 litres of finished (expanded) foam blanket (LX)

## Distribution of foam rationalised across the country

- Around 220 brigades hold Class B foam
- Appliances carry  either 2 or 4 x 20-litre drums
- Located in main urban centres and on fuel transport routes
- Use portable equipment - in-line inductors and foam branches




# FFF Transition - regulatory timeframes and implications



# Training foam - what is it?

## Our new training foam is Solberg SCTF

- Supplied as a ‘superconcentrate’ in 1-litre bottles
- Diluted 1 part ‘superconcentrate’ part to 19 parts water
- Dilution then proportioned at 3% (as for operational foam) to make foam solution
- Foam solution as applied is approx. 1/600 strength of the ‘superconcentrate’

## Analysis of foam solution as applied in training

- pH
- BOD and COD
- Anionic surfactants as MBAS
- Sulphates/sulphides/sulphites

Perimeter SOLUTIONS
Quality Products. Exceptional Response.

Solutions That Save.

**SOLBERG® SCTF TRAINING FOAM**

TRAINING FOAM CONCENTRATE

SOLBERG FLUORINE-FREE FOAM

**DESCRIPTION**

**SOLBERG® SCTF** is a super concentrated Training Foam which is an economical product designed for cold and hot training exercises. The product is packaged as a one litre bottle of super concentrate. After adding the contents of the bottle to water, proportion the mixture through air-aspirated or non air-aspirated equipment. The resulting foam can be used for cold training exercises to allow crews to become familiar with their equipment and have minimal environmental impact. In addition, the foam can be used for hot training exercises on hydrocarbon, non-water miscible fuels.

**APPLICATIONS**

SOLBERG SCTF Training Foam should be used through conventional fire fighting foam making equipment with fresh water. Sea or brackish water can be used, but performance of the foam will decrease. This can be remedied by adding an additional 1 litre bottle of SCTF to the training foam mix. Self-educting foam nozzles or in-line inductors are common types of hardware for application. In addition, non-aspirating nozzles can be used.

**MIXING INSTRUCTIONS**

For mixing, it is recommended that an old firefighting foam 20 litre pail be used to prepare the solution. First fill the 20 litre pail with approximately 19 litres of water. Add the entire contents of the 1 litre bottle SCTF Training Foam to the 19 litres of water. Stir, tumble or shake the mixture to ensure optimal dispersion of the superconcentrate in the water.

**ENVIRONMENTAL/TOXICOLOGICAL PROPERTIES**

SOLBERG SCTF Training Foam has undergone a programme of testing to assess the impact of foam on the natural environment. This product is low in toxicity to tested aquatic organisms in its diluted format and applied through fire fighting equipment. Test data shows that this product is readily biodegradable. (Material Safety Data sheet and Product Environmental Data information are available upon request.) SCTF is organohalide free, and does not use any fluorochemical materials.

**STORAGE**

SOLBERG SCTF Training Foam may be stored for at least 5 years without change in its performance characteristics. Freezing and thawing of the product will have no effect on its performance. Freeze-thaw cycling may cause slight stratification which may be overcome with moderate agitation.

**PACKAGING**

SOLBERG SCTF Training Foam superconcentrate is available in a carton of 10 bottles, each bottle containing 1 litre of product.

**TYPICAL PROPERTIES**

| | |
|---|---|
| Appearance: | Light yellow to straw coloured liquid |
| Nominal use concentration: | 6% |
| Specific Gravity @ 20°C: | 1.039 |
| Viscosity (Kinematic) @ 20°C: | 20 centistokes |
| Minimum use temperature | 1.7°C |
| Surface Tension | 29mN/m |
| Storage Temperature: | 1.7° - 49°C |
| Freeze Point: | -8°C |
| pH @ 20°C: | 7.2 |

# Training foam analysis (foam solution as applied)

| Test Code | Parameter Name | Units | Training foam (discharge conc) | Field Blank |
|---|---|---|---|---|
| NW239 | Anionic surfactants (MBAS) | mg/l | 325 | <0.1 |
| NW011 | Sulphate | mg/l | 24.2 | 3.25 |
| NW199 | Sulphide | mg/l | <0.2 | <0.2 |
| NW204 | Sulphite | mg/l | 3 | <2 |
| NW195 | pH | - | 7 | 7.4 |
| NW014 | Biochemical oxygen demand (BOD) | mg/l | 189 | <1 |
| NW020 | Chemical oxygen demand (COD) | mg/l | 1800 | 21 |

# Training foam - why use it?

- Enables practical training in foam equipment set up and different application techniques that is close to the real thing
- More economical than using operational foams
- Primarily for cold foam training - doesn’t have the same fire suppression performance as operational foams, not alcohol resistant
- ‘Superconcentrate’ allows for easier transport and handling (supplied in 1-litre bottles)
- Proportioned and applied using our standard Class B foam equipment (in-line inductors and aerating foam branches)

# Training foam - how do we want to use it?

- To provide all Class B foam-equipped brigades  with opportunities for practical training (to develop and maintain skills)
- Identify suitable training locations in each district
- Options:
  - **Contained discharge** - apply to concrete pad and discharge to trade waste where we have these facilities available
  - **Uncontained discharge** - application to open ground and allow to naturally break down (our preference)

# Training foam - how do we want to use it?

- Issues for **contained discharge**
  - Most stations don't have suitable containment and trade waste systems to capture foam discharge
  - Can the foam create problems in municipal trade waste systems and if so can we mitigate these?
  - Foam is quick to apply, much longer to clean up!
- Issues for **uncontained discharge**
  - Selection of suitable sites - considerations and complexities include: groundwater, proximity to surface water, cultural sensitivities, land ownership, regulatory risk aversion, setting criteria and limitations on use
  - Community/public/iwi perceptions, concerns and (justified) unease/misgivings in light of past PFAS history

# Feedback and questions?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