NHDES AIR RESOURCES DIVISION PUBLIC HEARING
Draft State Permit to Operate
Saint-Gobain Performance Plastics Corporation

Wednesday, June 21, 2023, 6:00 p.m.

Merrimack High School Little Theatre, 38 McElwain Street, Merrimack, New Hampshire

The public hearing is streaming LIVE from Merrimack TV:

Online at www.merrimacktv.com (Click "Watch Live" and Chose Channel 20 or HD1071)

Access Merrimack TV on streaming devices via "Cablecast Screenweave" a free app on Roku, Apple TV, and Amazon Fire TV

The meeting will also be available locally in several communities LIVE.

Watch on XFINITY Comcast Cable in your community available on Merrimack TV Channel 20 and HD1071, Bedford TV Channel 16 and HD1072, and Hudson Community TV Channel 20.

Note: This public hearing is being recorded.

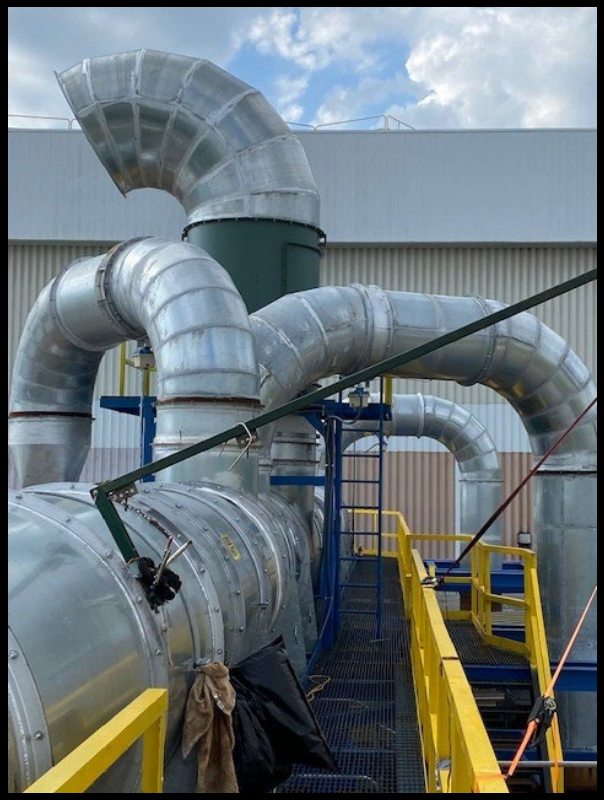
Submit written comments via email or U.S. Mail by 4 p.m. on June 28, 2023, to:

Catherine.A.Beahm@des.nh.gov

Cathy Beahm, Administrator, NHDES ARD, P.O. Box 95, Concord, NH 03302

Saint-Gobain Performance Plastics
Merrimack, NH

June 21, 2023



PUBLIC HEARING
DRAFT STATE PERMIT TO OPERATE

Catherine Beahm
Administrator
NHDES Air Resources Division

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

PRESENTATION AGENDA

Facility Overview

Permit Application Review Process

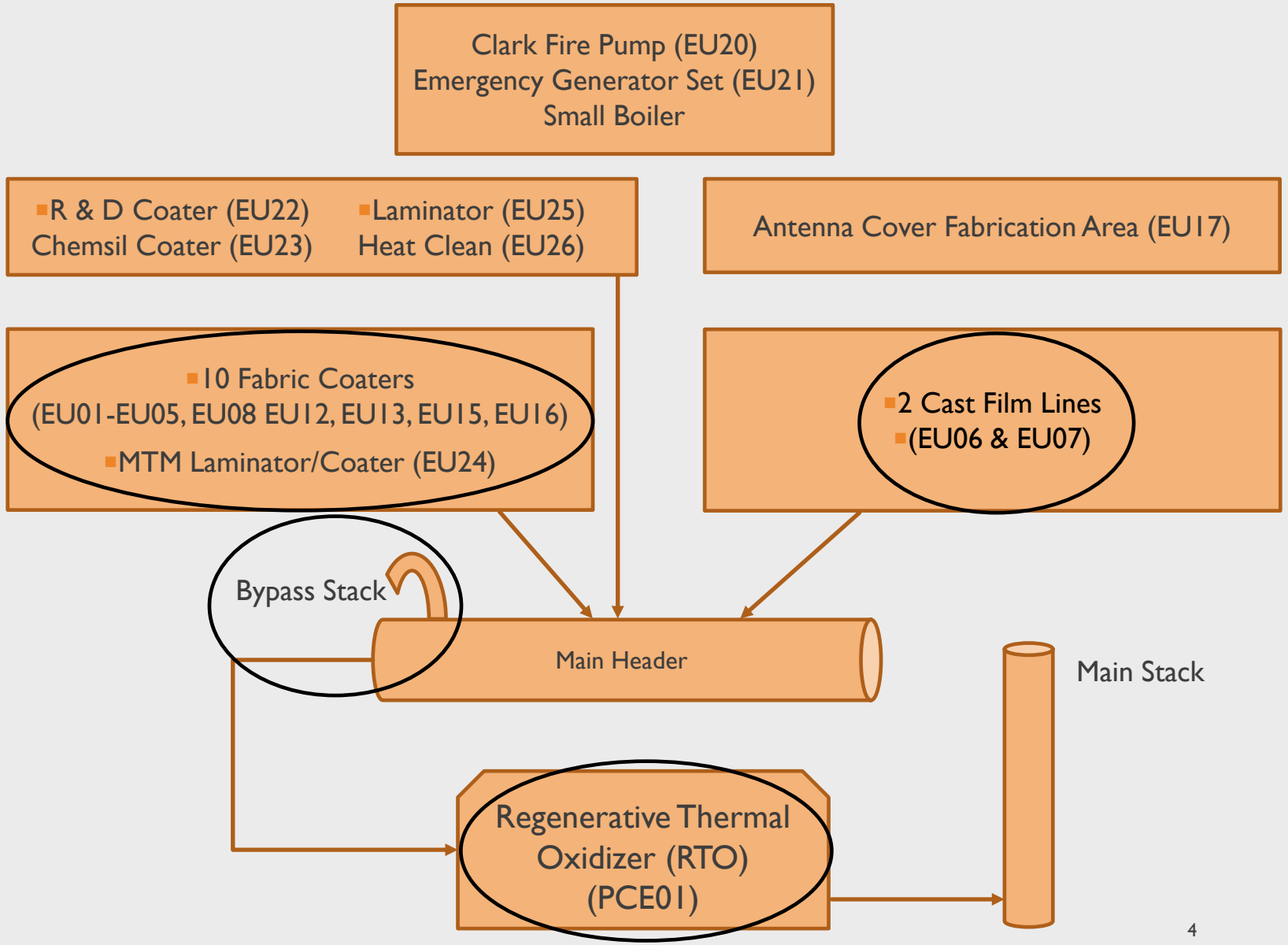
Regulatory Evaluation and Emission Data

State Permit to Operate Requirements

Next Steps

FACILITY OVERVIEW

FACILITY-WIDE OVERVIEW OF DEVICES

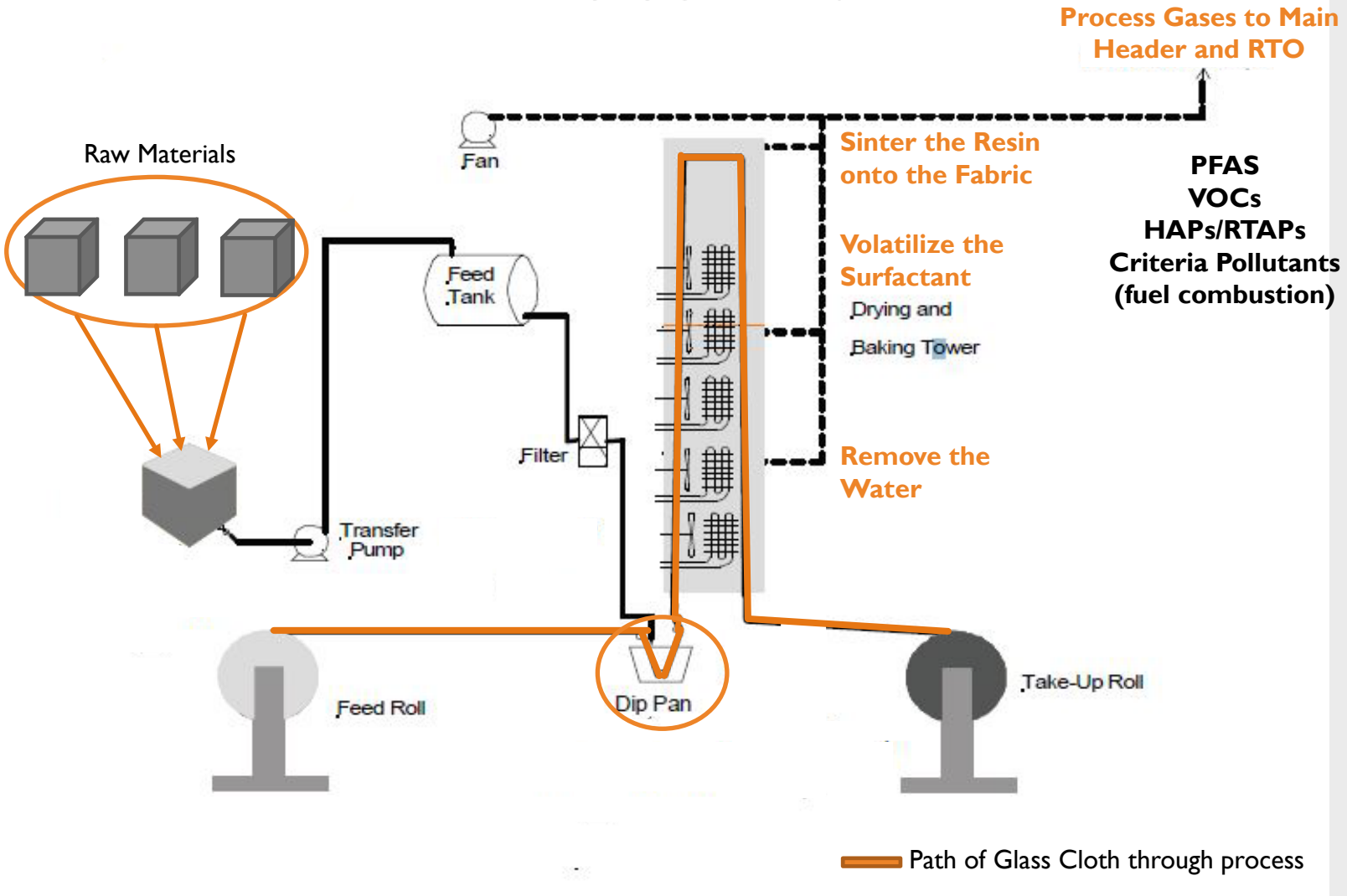


FACILITY OVERVIEW

FABRIC COATERS

MA, MB, MC, MR, MD, 20" COATER, MG, MP, MQ, MS TOWERS
(EU01 – EU05, EU08, EU12, EU13, EU15, EU16)
MTM LAMINATOR/COATER (EU24)

FABRIC COATERS

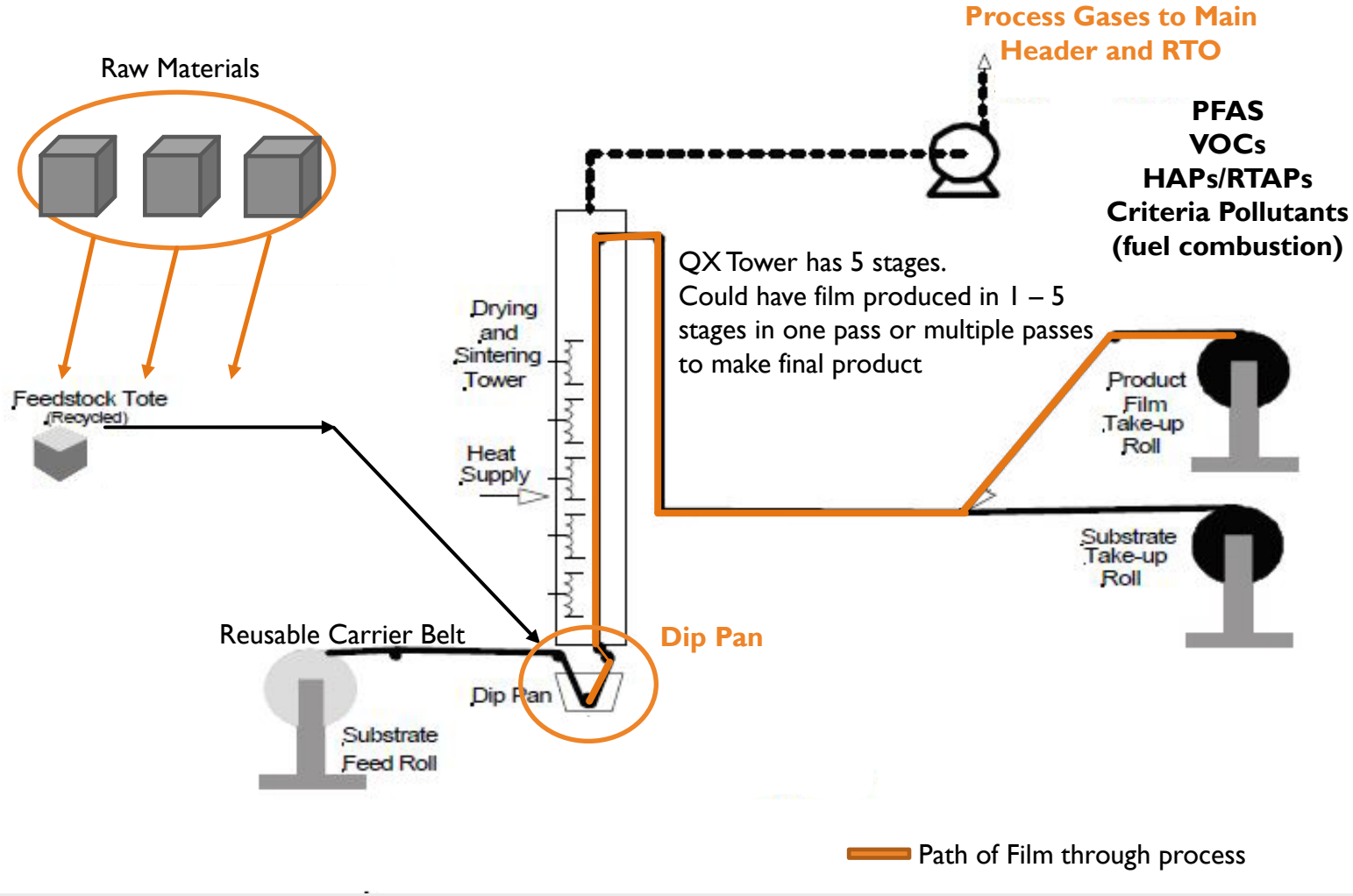


FACILITY OVERVIEW

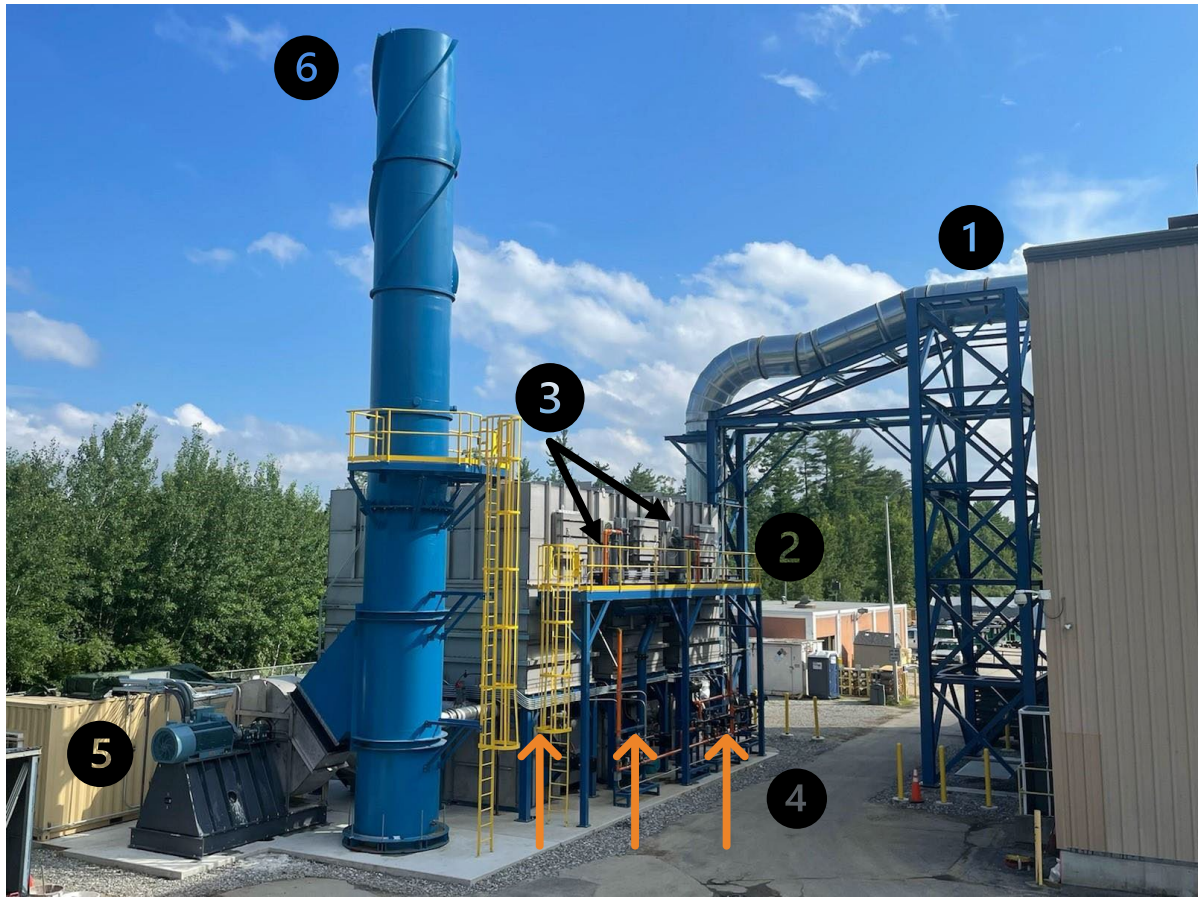
CAST FILM LINES

QX TOWER (EU06)
20" SBC (EU07)

CAST FILM LINES



SAINT-GOBAIN PERFORMANCE PLASTICS
MAIN COMPONENTS OF THE RTO



1. Main Header
2. Combustion Chamber
3. Two Natural Gas-fired Burners
4. Three Recovery Chambers
5. Process Fan
6. Main Stack

Source: *Saint-Gobain Air Pollution Control Equipment Monitoring Plan* (PL-EHS-003)

SAINT-GOBAIN PERFORMANCE PLASTICS
RTO THERMAL REACTION

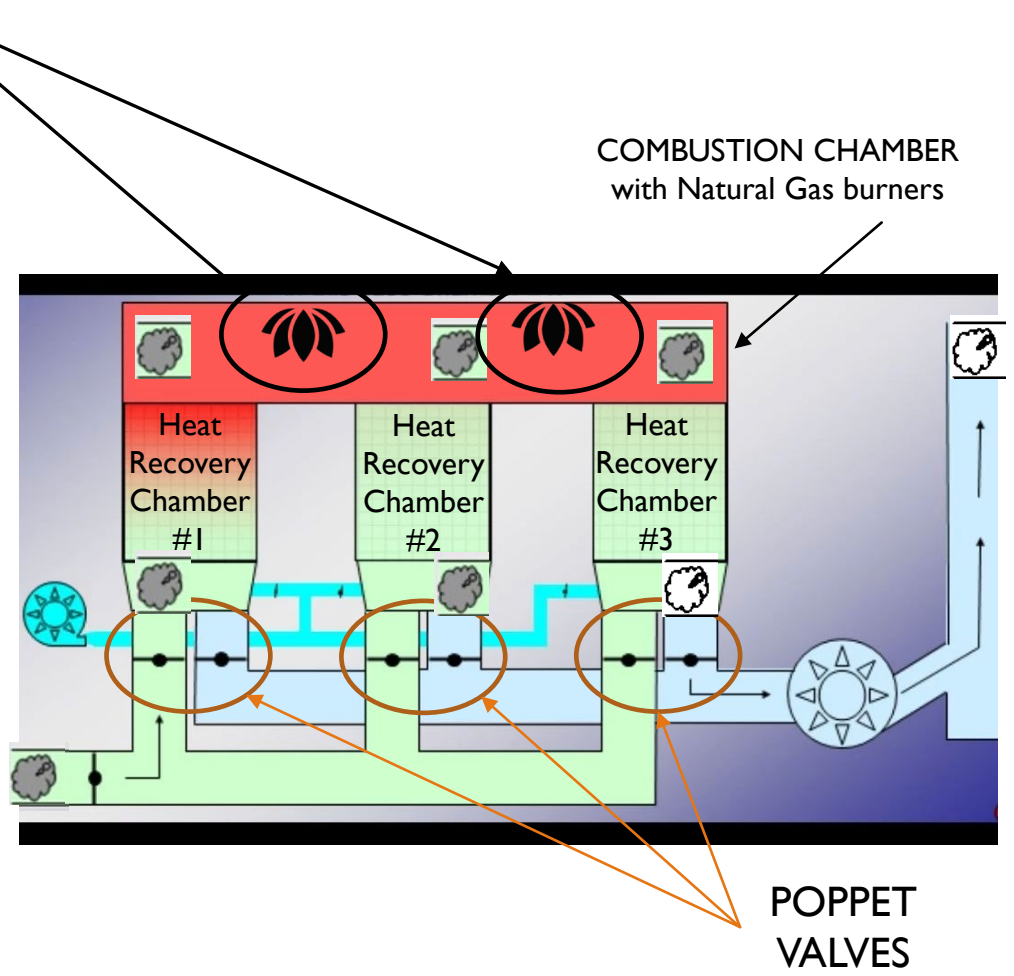
PFAS + VOCs + HAPs/RTAPs + Heat $\longrightarrow$ $CO_2 + H_2O$ + PICs **+ HF**

- Key Thermal Oxidizer parameters: Time, Temperature, and Turbulence
- Requires higher temperature than typical VOC control equipment (1832˚F vs 1400˚F – 1600˚F)
- C – F bonds are one of the strongest single bonds

Source: *Saint-Gobain Air Pollution Control Equipment Monitoring Plan* (PL-EHS-003)

HOW A MULTI-CHAMBER RTO WORKS

- Burners are ignited to get the combustion chamber up to set point temperature. Inlet valve opens and system fan pulls gases through RTO.
- Process gases enter RTO. Poppet valve configuration directs gases into one bed of the recovery chamber. Heat recovery chambers are filled with ceramic media.
- Process gases absorb heat from ceramic media (collected from previous cycle).
- The pre-heated process gases then enters the combustion chamber heated by burners.
- Pollutants remain in combustion chamber for a specified retention time.
- The clean hot air stream is then forced down into the second heat exchanger column where it releases energy back to ceramic media.
- The clean air stream then cools and exits the RTO through stack.
- Flow direction is switched to take advantage of the now warmed-up chamber bed to pre-heat incoming waste stream.
- The third chamber is designed to collect the small volume of untreated process gases during cycle changes to reintroduce to the treatment bed during the subsequent cycle.



Source: PolSys Services

BYPASS OPERATION

Source: *NHDES photo*

- Emergency bypass is critical to safe RTO operation.
- Bypass events are designed to protect the health and safety of:
  - Individuals in and around the facility
  - Process equipment
  - Control device
- 11 total modes of operation of the RTO
- Only 3 modes when bypass valve can open and process equipment is in operation:
  - Burner Off
  - Emergency Shutdown
  - High Inlet Temperature Shutdown

PERMIT APPLICATION REVIEW PROCESS

APPLICATION REVIEW PROCESS

- Applications received:
  - Request to amend Temporary Permit for bypass stack (#21-0198) – December 2021
  - Initial State Permit to Operate application (#22-0092) – June 2022
- Additional information received from SGPP:
  - 2021 Stack test report – January 2022; revised March 2022
  - Modeling – January 2022
  - Monitoring plan – February 2022
  - 2022 Stack test report – October 2022
  - Updated modeling – November 2022
  - Additional information to include changes to MTM (EU24) – April 2023

PERMIT APPLICATION REVIEW PROCESS (continued)

APPLICATION REVIEW PROCESS

- Technical/Engineering review by NHDES:
  - Review and approval of monitoring plan (June 2022)
  - Review and approval of stack test reports (May 2022 & February 2023)
  - Evaluation of air emissions
  - Evaluation of air dispersion and air deposition modeling (February 2023)
  - State and Federal air regulatory review
- Prepared draft State Permit to Operate with supporting documents for facility and public comment
- Public Notice published – May 21, 2023
- Public Hearing conducted – June 21, 2023
- Public Comment Period ends – June 28, 2023

State of New Hampshire
Department of Environmental Services
Air Resources Division

State Permit to Operate

Permit No: SP-XXXX
Date Issued: TBD

This certifies that:

Saint-Gobain Performance Plastics Corporation
701 Daniel Webster Highway
Merrimack, NH 03054

has been granted a State Permit to Operate for:

Coated Fabrics and Films Manufacturing Operations and Two Emergency Engines

at the following facility and location:

Saint-Gobain Performance Plastics Corporation
701 Daniel Webster Highway
Merrimack, NH 03054

Facility ID No: 3301100165
Application No: 21-0198, received December 28, 2021
22-0092, received June 1, 2022

DRAFT

which includes devices that emit air pollutants into the ambient air as set forth in the permit applications referenced above, which were filed with the New Hampshire Department of Environmental Services, Air Resources Division (department) in accordance with RSA 125-C of the New Hampshire Laws. Request for permit renewal must be received by the department at least 90 days prior to expiration of this permit and must be accompanied by the appropriate permit application forms.

This permit is valid upon issuance and expires on TBD.

Director
Air Resources Division

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Facility-wide Permit Limit 50 tpy VOCs

REGULATORY EVALUATION

FEDERAL & STATE REGULATIONS

FEDERAL REGULATIONS, NH STATUTES & CORRESPONDING NH REGULATIONS

- 40 CFR Part 60 Subpart VVV *Polymeric Coating of Supporting Substrates*
- 40 CFR Part 60 Subpart IIII *Stationary Compression Ignition Internal Combustion Engines*
- 40 CFR Part 63 Subpart JJJJJJ *Industrial, Commercial and Institutional Boilers at Area Sources*

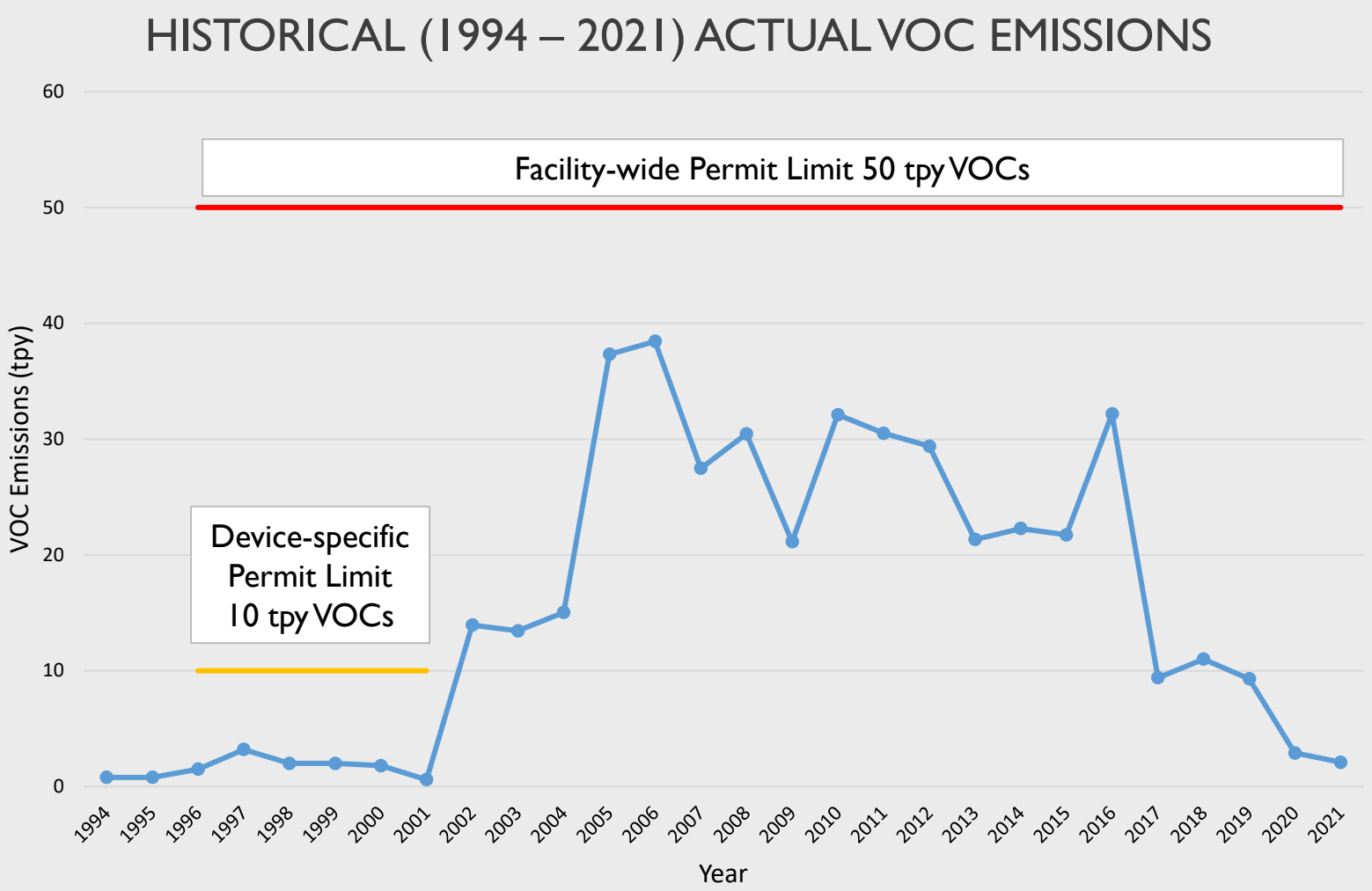
- NH Statute RSA 125-C *Air Pollution Control*
  - Env-A 1200 - Volatile Organic Compounds (VOCs) Reasonable Available Control Technology (RACT)
  - Env-A 1600 – Fuel Specifications
  - Env-A 2000 – Fuel Burning Devices
  - Env-A 2100 – Particulate Matter and Visible Emissions Standards
- NH Statute RSA 125-I Air Toxic Control Act
  - Env-A 1400 - Regulated Toxic Air Pollutants
- NH Statute RSA 125-C:10-e *Requirements for Air Emissions of Per and Polyfluoroalkyl Substances Impacting Soil and Water*

PERMIT LIMIT: Volatile Organic Compounds (VOCs) < 50 tpy

EMISSION DATA

FACILITY-WIDE PERMIT LIMITATIONS - VOCs

NH State Statute RSA 125-C, *Air Pollution Control*
Env-A 600, *Statewide Permit System*
Env-A 1200, *Volatile Organic Compounds (VOCs) Reasonable Available Control Technology (RACT)*



Facility-wide Permit Limit 50 tpy VOCs

EMISSION DATA

FACILITY-WIDE PERMIT LIMITATIONS - HAPs

NH State Statute RSA 125-C, *Air Pollution Control*
Env-A 600, *Statewide Permit System*

PERMIT LIMIT: Hazardous Air Pollutants (HAPs) < 10 tpy each & 25 tpy combined

HIGHEST HISTORICAL (2012 – 2021) ACTUAL HAP EMISSIONS

HAP	Highest Actual Emission Rate (2012 – 2021)	Current Potential Emissions	Permitted Limit
Ethylene Glycol	1.9 tpy	4.1 tpy	10 tpy
Toluene	1.2 tpy	3.6 tpy	10 tpy
Hydrogen Fluoride*	0.015 tpy	0.05 tpy	10 tpy
Miscellaneous HAPs	0.07 tpy	0.2 tpy	10 tpy each
TOTAL	3.2 tpy	8.0 tpy	25 tpy

* Based on 2021 stack test results at outlet of RTO. Potential HF emissions assumed 24 hours/day and 365 days/year. Actual HF emissions were calculated using 2021 scaling factor from applications recognizing RTO did not operate all of 2021.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

REGULATORY EVALUATION

NH AIR TOXICS REGULATION

NH State Statute RSA 125-C, *Air Pollution Control*
NH State Statute RSA 125-I, *Air Toxic Control Act*
Env-A 1400, *Regulated Toxic Air Pollutants*

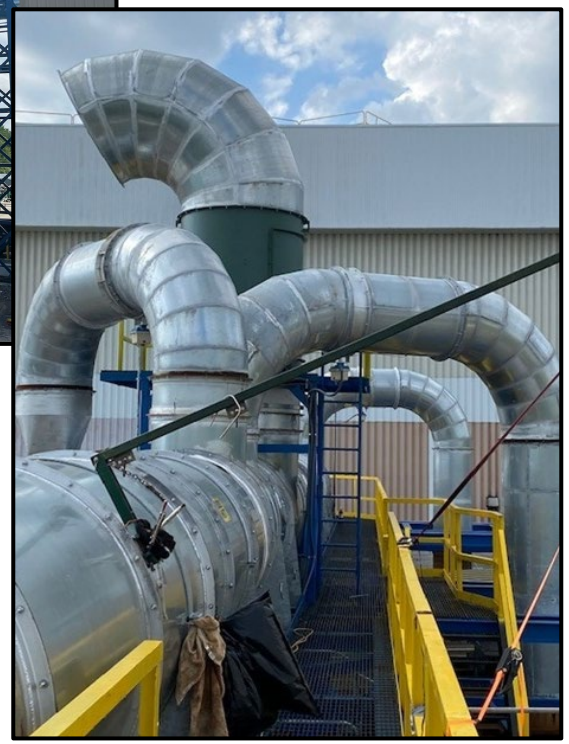
NH REGULATED TOXIC AIR POLLUTANTS (RTAPs AND HAPs)

- Env-A 1400, *Regulated Toxic Air Pollutants* – compliance methodology and ambient air limits (AALs)
- Fabric coaters/cast film lines AND antenna cover fabrication area (EU17)
- 2 Scenarios:
  - Main RTO stack in combination with EU17 emissions
  - Bypass stack in combination with EU17 emissions
- NHDES air dispersion modeling memo (February 2023)
- All maximum predicted RTAP impacts are below the respective AALs
- HF complies with Env-A 1400 using emissions from both stack test results and material balance evaluation
- Results were also evaluated with the inclusion of MTM (EU24)

BEST AVAILABLE CONTROL TECHNOLOGY

RSA 125-C:10-e *Requirements for Air Emissions of Per and Polyfluoroalkyl Substances Impacting Soil and Water*

Source: *Saint-Gobain Air Pollution Control Equipment Monitoring Plan* (PL-EHS-003)



Source: *NHDES photo*

<u>Regenerative Thermal Oxidizer (3 chambers)</u>

- Minimum temperature of 1832˚F (1000˚C)
- Minimum residence time of 1 second
- Inlet process gas airflow rate ≤70,000 scfm
- Operation in accordance with approved monitoring plans
- Ensuring capture efficiency of each device
- RTO must be operated at all times the processes are operating except:
- Utilization of the bypass stack for ≤175 hours per year and under specific modes of operation
- Individual PFAS annual emission limitations

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Facility-wide Permit Limit 50 tpy VOCs

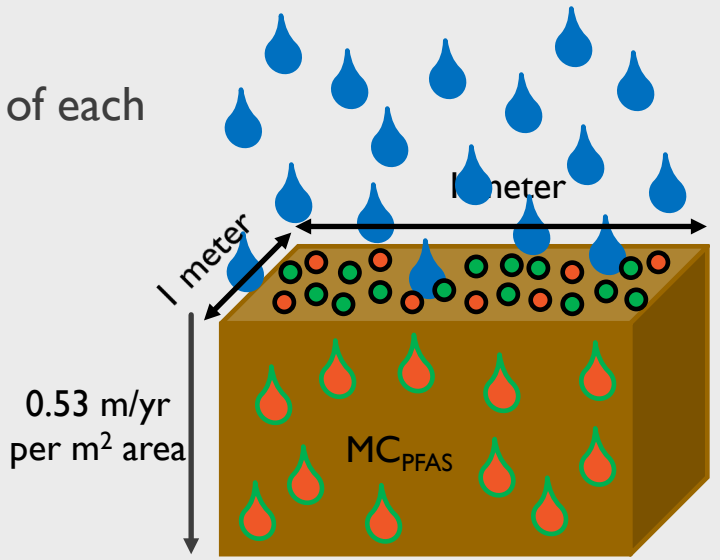
EMISSION LIMITS EVALUATION

FACILITY-WIDE PERMIT LIMITATIONS - PFAS

NH State Statute RSA 125-C, *Air Pollution Control*
NH Statute RSA 125-C:10-e *Requirements for Air Emissions of Per and Polyfluoroalkyl Substances Impacting Soil and Water*

PFAS EMISSION LIMITATIONS

- Concentration of PFAS in infiltrating water < reporting levels for each PFAS using EPA Method 533 PFAS for drinking water. [$MC_{PFAS} < LCMRL_{PFAS}$]
- AERMOD Deposition Modeling [Method 1]
  - Unit Impact Rate (UIR) Main Stack = **0.178 g/m²/yr** for each g/s
  - UIR Bypass Stack = **0.906 g/m²/yr** for each g/s
  - Permit limits bypass operations to 175 hours/yr
  - Infiltration rate of precipitation
  - Calculate maximum concentration of each PFAS (MC_{PFAS})
- $LCMRL_{PFOA}$ = 3.4 µg/m³ (ppt)
- $LCMRL_{PFOS}$ = 4.4 µg/m³ (ppt)
- $LCMRL_{PFNA}$ = 4.8 µg/m³ (ppt)
- $LCMRL_{PFHxS}$ = 3.7 µg/m³ (ppt)



NEW HAMPSHIRE DEPARTMENT OF Environmental Services

Facility-wide Permit Limit 50 tpy VOCs

EMISSION LIMITS EVALUATION

FACILITY-WIDE PERMIT LIMITATIONS - PFAS

NH State Statute RSA 125-C, *Air Pollution Control*
NH Statute RSA 125-C:10-e *Requirements for Air Emissions of Per and Polyfluoroalkyl Substances Impacting Soil and Water*

FACILITY-WIDE EMISSION LIMITATIONS

PERMIT LIMIT:

PFAS	Permitted Limit
PFOA	0.69 lb/yr
PFOS	0.90 lb/yr
PFNA	0.98 lb/yr
PFHxS	0.75 lb/yr

ACTUAL EMISSIONS*:

PFAS	2022	% of Limit
PFOA	0.01 lb/yr	0.74%
PFOS	0.0001 lb/yr	0.01%
PFNA	0.001 lb/yr	0.14%
PFHxS	0.00000003 lb/yr	0.00%

* Based on 2022 inlet and outlet RTO stack test results, total hours of process emissions exiting the bypass stack in 2022, and total hours of process equipment in operation which resulted in emissions from the regenerative thermal oxidizer through the main stack. 2022 was the first full year of operation of the RTO.

REGENERATIVE THERMAL OXIDIZER
MONITORING PARAMETERS AND PERMIT DEVIATION REPORTING

Source: *Saint-Gobain Air Pollution Control Equipment Monitoring Plan* (PL-EHS-003)

- 7 thermocouples measuring temperature within the combustion chamber and each of the 3 recovery chambers
- Continuously monitoring:
  - Temperature
  - Inlet process gas airflow
  - Natural gas flow
- Reporting to NHDES required within 24-hrs of discovery of hourly block average temperature below 1832˚F lasting for 3 consecutive hours. Formal report within 10 days.

Source: *NHDES photo*

BYPASS OPERATION MONITORING PARAMETERS AND PERMIT DEVIATION REPORTING

- Continuously monitoring:
  - Inlet process gas airflow
  - Length of bypass time
  - RTO mode of operation at the time
  - Emission units in operation
  - Individual and running total of annual PFAS emissions during bypass

- Reporting to NHDES required within 24-hrs of discovery for bypass event that lasts more than 1 hour. Formal report within 10 days.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

STATE PERMIT TO OPERATE REQUIREMENTS

NH State Statute RSA 125-C, *Air Pollution Control*
NH Statute RSA 125-C:10-e *Requirements for Air Emissions of Per and Polyfluoroalkyl Substances Impacting Soil and Water*
Env-A 800, *Testing and Monitoring Procedures*

STACK TESTING REQUIREMENTS

- Stack testing at inlet and outlet of RTO
- EPA Method OTM-45. Leaves room for new PFAS stack testing methods should they be developed
- Annual capture efficiency testing or option to install pressure gauges to monitor pressure to prevent fugitive emissions
- Confirmatory capture efficiency testing during stack tests
- Annual PFAS stack testing for a minimum of 2 consecutive tests within the permit term
- If PFAS emissions are at or below 75% of emission limits, testing frequency can be reduced to no more than 37 months after previous test
- Testing returns to annual if any PFAS analyte exceeds 75% of emission limits

AIR PERMIT PROCESS – NEXT STEPS

DRAFT PERMIT & APPLICATION REVIEW SUMMARY

May 21, 2023

PUBLIC NOTICE & COMMENT PERIOD

May 21 – June 28, 2023

PUBLIC HEARING

June 21, 2023

DIRECTOR'S DECISION and FINDINGS OF FACT

30 working days after close of the public comment period

QUESTIONS & PUBLIC COMMENTS

CATHERINE BEAHM, ADMINISTRATOR

(603) 271-6793

CATHERINE.A.BEAHM@DES.NH.GOV

NHDES AIR RESOURCES DIVISION

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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