Regular Variance

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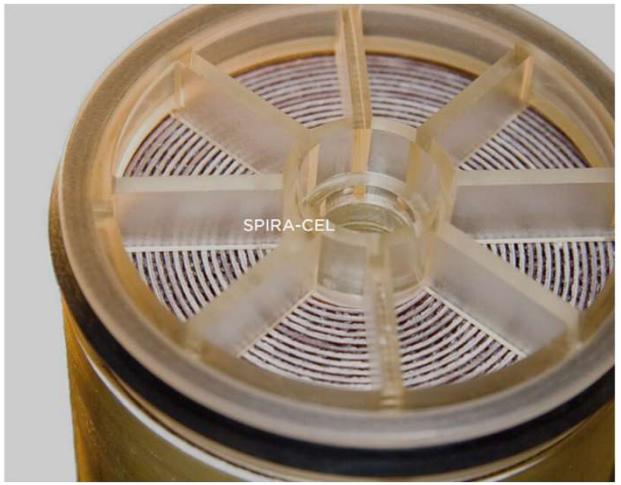
Leadership in Filtration

MANN+HUMMEL

Mann+Hummel (MNUS) – Who We Are and What We do

- MNUS has 139 employees that help manufacture water filtration
- Leading supplier of water filtration
- Focuses on sustainable solutions against water pollution such as water reuse, decentralized wastewater treatment and industrial wastewater solutions
- Manufactured products at MNUS: Trisep and Spira-Cel RO



MNUS Casting Processes

- Three types of casting processes
- 1.000 MMBtu/hr thermal oxidizer required

Why We’re Here:

- More time to repair or replace the thermal oxidizer
- To continue production while working toward compliance

SIX FINDINGS REQUIRED FOR VARIANCE

1. Applicant is unable to comply with District Rule or HSC 41701 (Visible Emissions)
2. Noncompliance due to conditions beyond applicant's reasonable control and requiring compliance would result in unreasonable taking of property or closing of business
3. Such Taking is without Corresponding Benefit in reducing pollution
4. Applicant has considered Curtailing Operations
5. Applicant will reduce emissions to maximum extent feasible
6. Applicant will monitor and report emissions

TWO IMPLICIT FINDINGS IN SUPPORT OF VARIANCE

1. Operation under variance not a nuisance
2. Other requirements to guarantee expeditious compliance with emissions standards or increments of progress

FINDING 1

APPLICANT IS UNABLE TO COMPLY WITH DISTRICT RULE 206

1. District Rule 206
2. Condition 1 – Emission Limitations
3. Condition 2 (d) IV – Removal Efficiency
4. Table 3 – Best Available Control Technology Requirements
5. Table 4 – Source Test Requirements
6. Condition 9
7. Condition11 (a)

FINDING 1

ACTIONS TO COMPLY

- Ducting inspection performed
- Obtain quotes for repairing and replacing the thermal oxidizer
- Vendor Onsite Visits
- Scheduled onsite visits from different vendors:
    - January 13 and 14 – Oxidizer's Inc. onsite visit
    - February 6 – Baghouse Industrial Sheet Metal onsite visit
    - February 27 - Durr systems Inc. onsite visit
- Hired an Environmental Consultant

FINDING 2

Noncompliance due to conditions beyond applicant's reasonable control and requiring compliance would result in unreasonable taking of property or closing of business

- Permit to Operate 16120 requires annual Source Testing of the thermal oxidizer
- MNUS failed the source Test
- 3rd party vendor contacted
- December 10, 2024 - Visual Inspection
- January 13, 14 – Inspection
- Deteriorated heat exchanger pipes
- Natural degradation of pipes due to age
- State of Oxidizer was not known until the inspection

FINDING 2

Noncompliance due to conditions beyond the reasonable control and requiring compliance would result in either unreasonable taking of property or closing of a lawful business

- Three distinct casting operations prescribed for Permit to Operate 16120
- ACM process integral part of production
- Emission Control
- Excess emissions are less than the taking of this lawful business
- 3rd party vendor contacted
- December 10, 2024 – Visual Inspection
- January 13, 14 – Inspection
- Deteriorated heat Exchanger
- Natural Degradation of pipes due to age

- State of Oxidizer was not known until the inspection
- Immediate Compliance Requirement
- Shutdown or reduction of operation hours
- Financial penalties and fees
- Significant Impact on MNUS operations
- Unforeseen issue with Thermal Oxidizer
- Reduction of operations leading to financial pressure
- Job Cuts
- Loss of business contracts
- Closure of Facility
- Incur Penalties
- MNUS contribution to the economy

FINDING 3

Such Taking is without Corresponding Benefit in reducing pollution

- There may be a slight decrease from actual conditions in ROC emissions
- Condition 2 (d) IV mandates a 98% reduction
- Thermal Oxidizer is running at 97% control efficiency
- Adjust production
- Upgrade – will require time and resources for the permitting process and installation
- Significant financial burden
- Achieve full compliance and minimize emissions

FINDING 4
Applicant has considered curtailing operations

- MNUS would consider curtailing operations
- ACM process is an integral part of production
- Shutdown casting lines which could result in closing business
- Workforce implications

FINDING 5

Applicant will reduce emissions to maximum extent feasible

- Minimize excess emissions
- Delaying long term orders with customers
- Slowing down production and ensure that operations do not exceed permit limitations
- Conduct periodic internal testing to verify control efficiency
- Perform maintenance within the ACM process and thermal oxidizer
- Production schedule and order timelines will be adjusted
- Periodic internal testing
- Sample collections
- Flow rate verification

FINDING 6

Applicant will monitor and report emissions

- MNUS to keep the District updated with the repairs or replacement
- Maintain thorough records
- Use a third party to gather emissions data
- Internal testing
- Samples will be collected
- Flow rates will be verified
- Conduct operational checks of the system

FINDING 6
Applicant will monitor and report emissions
continued…

- Conduct more thorough monitoring
- Maintain a weekly calculation of emissions
- ACM Solvent emissions calculations
- Monitor other casting operations
- Reduced controlled efficiency of the thermal oxidizer

Permit to Operate 16120

ATTACHMENT B
Emission Equations

CA-V1, PSF-V1 and PSF-V2 Solvent Emission Equations

Equation 1 : Emissions of solvent X from the sewer = $[(NU_{Mx} \times SFx) + (NU_{Mx}(1 - SFx) \times CPe) \times Ce] \times Fe_x$

Equation 2 : Emissions of solvent X from casting = $[NU_{Mx} \times (1 - SF_x) \times (1 - CPe)] + [NU_{Mx} \times (1 - SF_x) \times (CPe) \times (1 - Ce)]$

Total Solvent Emissions (lb/Month) = Equation 1 + Equation 2

Where

C_e	=	Control efficiency of wet scrubber, equal to 0.90 (90%) for PSF-V1 and CA-V1 casting emissions, and 0.95 (95%) for PSF-V2 casting emissions
CPe	=	Capture efficiency, equal to 0.95 (95%)
Fe_x	=	Fraction of solvent x in sewer emitted as fugitives
SF_x	=	Fraction of solvent x that is disposed to the sewer in the casting process
NU_{Mx}	=	Net monthly usage of solvent x in either the CA-V1, PSF-V1 or PSF-V2 line (lbs) [(Begining of Month Inventory + Monthly Purchase Amount) - (End of Month Inventory + HWM)]
HWM	=	Amount of solvent x from the CA-V1, PSF-V1 or PSF-V2 line that is recycled by hazardous waste manifest monthly (lbs)

Solvent x	Fe, Value
[redacted]	[redacted]

Solvent x	SF, Value
[redacted]	0.9
	0.9648
	0.9648
	0.9648
	0.975
	0.975

Notes:
1. All equations represent emission values as lbs on a monthly basis. Sum equations 1 and 2 for each solvent to obtain the total emissions of solvent x on a monthly basis.
2. Equation 1 calculates the fugitive emissions from solvents that have been sent to the sewer and includes solvent sent to sewer from the wet scrubber. Fraction Emitted (Fe) values found in the SOCMI Wastewater NSPS Appendix I.
3. Equation 2 calculates the evaporative emissions of solvents during the casting process and takes into account the unsaptured emissions as well as the fraction of unreacted emissions from the control device.
4. To obtain daily emissions of solvent x, divide the monthly emissions by 21.7 days per month. To obtain the annual emissions in TPY, sum the monthly emissions and divide by 2000 lbs/ton.
5. Due to the low vapor pressures of [redacted] and [redacted] it is assumed that no [redacted] or [redacted] disposed by sewer is emitted into the atmosphere.
6. Amount of solvent sent to sewer in casting process (SFx) for each casting line is assumed to be equal to the ratio used in PTO 14521.
7. The amount of solvent that is recycled by hazardous waste manifest shall be verified by weighing each drum and analyzing for ROC content according to the facility's APCD-approved Solvent Recovery Plan.
8. No ROC credit shall be received for recycling any drum containing cloth, paper or other solids.
9. When calculating emissions for [redacted] HWM shall be equal to 0.

Two Implicit Findings In Support Of A Variance

1. **Operation under variance not a nuisance**

a) MNUS is located in an industrial location
b) Emissions not to exceed permit limitations
c) Variance will not create an undue burden nor environmental nuisance
d) Committed to maintaining compliance
e) Adjustments will remain within acceptable thresholds

2. **Other requirements to guarantee expeditious compliance with emissions standards or increments of progress**

a) MNUS is working with multiple vendors
b) Involves consultation and evaluate various technologies and strategies
c) MNUS conducting cost-benefit analyses, feasibility studies, technical evaluations
d) Establish timeline with clear targets
e) Committed to keeping APCD informed about progress and changes to timeline

Importance of Variance Coverage

- Failed Source Test Results
- Compliance with Permit To Operate 16120
- Submitting a permit application for the replacement of the thermal oxidizer
- Conform with District Rules
- Complete Installation

Timing

- Permit Application for a new thermal oxidizer - Approximately 2-3 months for the approval of the permit application

- Project Completion - Approximately 18 weeks (4.5 months) or more to complete the project

Corrective Measures

1. Apply for interim and regular variances
2. Performed a diagnostic inspection of the thermal oxidizer
3. Hired an Environmental Consulting firm
4. Conducted a Summa Cannister Test
5. Obtain quotes for replacing the thermal oxidizer

Closing Statement

MANN+HUMMEL

Safety First, Quality Always!

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Thank you