



TECHNICAL SUPPORT DOCUMENT

TECHNICAL REVIEW AND EVALUATION OF APPLICATION FOR AIR QUALITY PERMIT #53618

I. INTRODUCTION

This Title V permit is issued to Eurofresh, Inc. for the continued operation of their greenhouse facility. This is a renewal of Operating Permit #27099. However, because of relaxation of voluntarily accepted limits, the operating permit is converted from a non-Title V to Title V permit. The facility has six greenhouses, each greenhouse consisting of three boilers and two internal combustion engines (ICEs). Besides, the facility has one stand-by ICE. Primary fuel for all the boilers is natural gas. The boilers will also have the capability to use diesel fuel.

Company Information:

Facility Name: Eurofresh-Willcox
Mailing/Facility Address: 26050 South Eurofresh Avenue
Willcox, AZ 85.643

II. FACILITY DESCRIPTION

Process Description

This facility produces hydroponic tomatoes and/or cucumbers in many varieties all through the year. The boilers are used to regulate temperature of the greenhouses. The exhaust gases of the boilers provide additional carbon dioxide to the greenhouse plants thereby enhancing the photosynthesis process. The exhaust gases from the natural gas fired boilers are vented through the flexible plastic tubes beneath the water supply for each row of plants. The tubes allow carbon dioxide (CO₂) containing exhaust gases to be released near the base of the plant. Unused exhaust gases are vented out through structural openings in the greenhouse building. The exhaust gases, when boilers are operating with diesel fuel and during night-time operations are vented to the atmosphere. The ICEs are used to supply power in emergency situations and during periods of high “peak” electrical usage to either reduce the demand from or provide power to the commercial power supplier or “grid”.

III. EMISSIONS

A. Facility wide Emissions

Eurofresh is a major source for purposes of Title V since potential emissions of nitrogen oxides (NO_x) exceed 100 tpy. Facility wide emissions are listed in Table 1. In order to stay a synthetic minor source for purposes of the federal New Source Review program, the source is accepting limitations on the use of natural gas and diesel fuel in the boilers and operating hours for the ICEs. A copy of the potential to emit is enclosed as Annexure I.

Table 1- Facility wide Emissions

| Pollutant | Potential to Emit |
|-------------------|-------------------|
| | Tons per year |
| NO _x | 141.70 |
| CO | 20.04 |
| SO ₂ | 3.72 |
| VOC | 7.83 |
| PM | 10.78 |
| PM ₁₀ | 10.15 |
| PM _{2.5} | 7.83 |
| CO ₂ | 132,423 |
| HAPs | 2.16 |

B. Source within a Source

Eurofresh is a major source under the Title V program because emissions of nitrogen oxide (NO_x) exceed 100 tons per year (tpy). The definition of major source under the New Source Review program states that the Prevention of Significant Deterioration (PSD) major source threshold is 100 tpy for a source classified as a categorical source and 250 tpy for a source not classified as a categorical source. The list of categorical sources, A.A.C. R 18-2-401(2), does not include greenhouses. Thus for Eurofresh's overall operation, the PSD major source threshold is 250 tpy. For supporting the greenhouses, Eurofresh has dual-fuel fired boilers (natural gas and diesel) at their facility. Since this support facility is a listed categorical source, the PSD threshold for the boilers is 100 tpy. The source has accepted annual limits on natural gas usage and hours of operation of boilers with liquid fuel to stay below 100 tpy of NO_x. The source has also accepted limits on the operation of ICEs to stay below the major source facility wide threshold of 250 tpy of NO_x. With the establishment of voluntarily accepted emission limitations, Eurofresh's facility-wide emissions will not exceed 250 tpy. Consequently, the Eurofresh's facility as a whole is not considered a PSD major source. The dual-fuel fired boilers have PTE for all criteria pollutants below 100 tpy. Consequently, it will not be considered a PSD major source.

C. Greenhouse Gases Emissions and Permitting

Starting on January 2, 2011 permitting program requirements are applicable for greenhouse gas (GHG) emissions from stationary sources. To streamline the process, EPA finalized the "tailoring rule" to essentially ensure that a higher threshold is used to subject GHG emissions to Title V and NSR obligations. The first step of the tailoring rule is for the period between Jan 2, 2011 and June 30, 2011. It essentially stipulates that a newly-constructed project or modification can trigger NSR review for GHGs only if they trigger NSR review for another pollutant. The numerical threshold for triggering NSR is 75,000 tpy of GHGs and a net increase greater than zero. In Step 2, beginning July 1, 2011, facilities can be subject to NSR and Title V permitting requirements solely by virtue of their GHG emissions. The threshold is 100,000 tpy for new sources and 75,000 tpy for modifications.

Eurofresh's Willcox greenhouse farm is an existing facility. As part of this project, the facility is not adding any new equipment. However, the source is seeking some changes which will essentially amount to "a physical change or change in the method of operation". The changes are identified below:

- Adding the capability to burn diesel in the boilers in addition to natural gas.
- The natural gas usage limit in the operating permit is increased from 1558.5 million cubic feet per year to 2050 million cubic feet per year.
- The generators operating limitation is being changed from 3,453,080 hp-hr/year to 6,042,750 hp-hr/year.

The above referenced changes will have the effect of reclassifying the facility's permit from a Class II synthetic minor status to a Class I non-PSD status.

In light of the referenced changes, it can be concluded that this project involves a "modification". The facility is not an existing PSD source, nor will it become a PSD source for criteria pollutants as a result of this modification. Since the permit is proposed to be issued in Step 1 of the implementation of the Tailoring Rule, any increase in GHG emissions as a result of the modification does not trigger NSR.

IV. LEARNING SITES IN VICINITY

In accordance with ADEQ's Environmental Permits and Approvals near Learning Sites Policy, the Department conducted an evaluation to determine if any nearby learning sites would be adversely impacted by the facility. Learning sites consist of all existing public schools, charter schools and private schools the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. The learning sites policy was established to ensure that the protection of children at learning sites is considered before a permit approval is issued by ADEQ.

There are no schools within two miles of the facility.

V. COMPLIANCE HISTORY

Inspections are being regularly conducted at the Eurofresh, Inc. to ensure compliance with its applicable permit conditions. No cases or violations have been developed as a result of inspections.

VI. APPLICABLE REGULATIONS

The Permittee has identified the applicable regulations that apply to each unit in its permit application. The following Table 2 summarizes the findings of the Department with respect to the regulations that are applicable to each emissions unit.

Table 2: Applicable Regulations

| Unit ID | Date of Manufacture/ Construction | Control Equipment | Applicable Regulations | Verification |
|-----------------------------|--|-----------------------------|--|--|
| Boilers | 1992, 1996, 1997, 1999, 2003, 2005, and 2006 | Low-NO _x Burners | New Source Performance Standards (NSPS) 40 CFR Subpart Dc National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart JJJJJ | NSPS Subpart Dc is applicable to boilers with capacity between 10 to 100 MMBtu/hr, and manufactured after June 1989. The rated capacity of the boilers is varying from 35.87 to 41.74 MMBtu/hr. The boilers have been manufactured in the years 1992, 1996, 1997, 1999, 2003, 2005, and 2006. Therefore NSPS Subpart Dc is applicable to these boilers. NESHAP Subpart JJJJJ defines 'Gas-fired boiler' as any boiler that burns gaseous fuels not combined with any solid fuels, and burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuel. The boilers at Eurofresh shall be using liquid fuel only in the event of curtailment of natural gas supply. Therefore NESHAP Subpart JJJJJ is not applicable. |
| Internal Combustion Engines | 1992, 1999, 2005, and January, 2006 | None | NSPS Subpart IIII A.A.C. R18-2-719 | Applicability date for NSPS Subpart IIII is April, 2006 for compression ignition engines. All the ICEs are manufactured prior to April 1, 2006. Therefore NSPS Subpart IIII is not applicable. A.A.C. R18-2-719 is applicable to all the ICEs. |
| Internal Combustion Engines | 1992, 1999, 2005, and January, 2006 | None | National Emission Standards for Hazardous Air Pollutants (NESHAP) Subpart ZZZZ | All the ICEs are 'existing' stationary reciprocating internal combustion engine (RICE) at an area source in accordance with 40 CFR 63, Subpart ZZZZ. Requirements of Subpart ZZZZ are applicable. |

| Unit ID | Date of Manufacture/ Construction | Control Equipment | Applicable Regulations | Verification |
|---|--------------------------------------|---|---|--|
| Gasoline Storage Tanks and Gasoline Dispensing Facility (GDF) | | | A.A.C. R18-2-710 40 CFR 63 Subpart CCCCC | NSPS Subparts K is applicable to storage tanks built during June 11, 1973, to May 19, 1978. Subpart Ka is applicable to storage tanks built during May 18, 1978, to July 23, 1984. 40 CFR Subpart Kb is applicable to storage tanks built after July 23, 1984 with capacity greater than 19,875 gallons. Storage tank at this facility is below 19,875 gallons. Therefore NSPS Subparts K, Ka, and Kb are not applicable. A.A.C. R18-2-710 is applicable to storage tank handling petroleum liquids, and hence, applicable to gasoline storage tank. NESHAP Subpart CCCCC is applicable to the gasoline dispensing facility at Eurofresh. |
| Fugitive dust sources | NA | Water and other reasonable precautions | Article 6 and A.A.C. R18-2-702 | These are applicable to fugitive dust sources at the facility. |
| Abrasive Blasting | | Water and enclosure | A.A.C. R-18-2-726 | This standard is applicable to any abrasive blasting operation. |
| Spray painting operations | NA | NA | A.A.C. R-18-2-727 | This standard is applicable to any spray painting operation. |
| Demolition/renovation operations | NA | NA | A.A.C. R18-2-1101.A.8 | This standard is applicable to any asbestos related demolition or renovation operations. |
| Mobile sources | NA | Water Sprays/ Water Truck for dust control | Article 8 | This Article is applicable to off-road mobile sources, which either move while emitting air pollutants or are frequently moved during the course of their utilization. |

VII. PREVIOUS PERMITS AND PERMIT CONDITIONS

A. Previous Permits

Following is the list of permits issued to this facility.

Table 3: PREVIOUS PERMITS

| Permit # | Issue Date | Application Basis |
|----------|-------------------|-----------------------------|
| 27099 | December 19, 2003 | Class II Operating Permit |
| 31941 | November 15, 2004 | Significant Permit Revision |
| 36094 | November 23, 2005 | Significant Permit Revision |
| 37370 | November 9, 2006 | Significant Permit Revision |

B. Previous Permit Conditions

1. Operating Permit #27099

| Condition # | Determination | | | | Comments |
|--------------|---------------|------|--------|------------|---|
| | Delete | Kept | Revise | Streamline | |
| Attachment A | | | x | | This has been revised and most recent Attachment "A" is used for this permit. |
| Attachment B | | | | | |
| I | x | | | | Condition for relationship to applicable state implementation plan |
| II | | x | | | Condition for facility wide requirements |
| III | | | x | | This condition for fuel limitation for boilers has been rewritten as a facility wide total. |
| IV | | x | | | Condition for the ICEs |
| V | | x | | | Fugitive Dust Requirements |
| VI | | x | | | Mobile Source Requirements |
| VII | | x | | | Other Periodic Activities like abrasive blasting, use of paints, demolition and renovation |

2. Significant Permit revision #31941

| Condition # | Determination | | | | Comments |
|-------------|---------------|------|--------|------------|--|
| | Delete | Kept | Revise | Streamline | |
| III. | | | x | | This condition for fuel limitation for boilers has been rewritten as a facility wide total. |
| IV | | | x | | This condition for the operating hours limitation has been rewritten as a facility wide total. |

3. Significant Permit revision #36094

| Condition # | Determination | | | | Comments |
|-------------|---------------|------|--------|------------|---|
| | Delete | Kept | Revise | Streamline | |
| III. | | | x | | This condition for fuel limitation for boilers has been rewritten as a facility wide total. |

4. Significant Permit revision #37370

| Condition # | Determination | | | | Comments |
|-------------|---------------|------|--------|------------|--|
| | Delete | Kept | Revise | Streamline | |
| III. | | | x | | This condition for fuel limitation for boilers has been rewritten as a facility wide total. |
| IV | | | x | | This condition for the operating hours limitation has been rewritten as a facility wide total. |

VIII. PERIODIC MONITORING AND RECORDKEEPING

A. Boilers

1. The Permittee must maintain daily records of the natural gas combusted in the boilers and 12-month rolling total of natural gas combusted in the boilers to show compliance with the 12-month voluntarily accepted limitations on natural gas use in the boilers.
2. The Permittee must maintain daily records of the hours boilers have operated on diesel fuel and 12-month rolling total of hours of operation of boilers on diesel fuel to show compliance with the 12-month voluntarily accepted hourly limitation on operation of boilers on diesel fuel. The facility has the capability to track the hours of operation of the boilers while burning liquid fuel through their green house (GH) environmental control computer system.

3. The Permittee must maintain a record of the certification from the diesel fuel supplier, containing the following information:
 - a. Name of the oil supplier;
 - b. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil;
 - c. The sulfur content or maximum sulfur content of the oil;
4. While using diesel fuel, the Permittee must conduct a monthly survey of visible emissions emanating from the stack of each boiler at the facility. If the opacity of the emissions observed appears to exceed the opacity limit, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required to keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. Any exceedance must be reported to ADEQ as an “excess emission”.
5. The Permittee must maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the boilers.

B. Internal Combustion Engines

1. The Permittee must maintain a monthly log of the hours of operation of each of the ICEs. At the end of each month, the Permittee must calculate and record a rolling a 12-month total of the HP-hours operated for all the ICEs to show compliance with the voluntarily accepted limitation on the operation of ICEs.
2. ICEs subject to State Regulations
 - a. The Permittee must keep records of diesel fuel supplier certifications. The certification must contain information regarding the name of fuel supplier, sulfur content of the diesel, and heating value of the diesel.
 - b. The Permittee must conduct a monthly survey of visible emissions emanating from the stack of each internal combustion engine at the facility when operating. If the opacity of the emissions observed appears to exceed the opacity limit, the observer must conduct a certified EPA Reference Method 9 observation. The Permittee is required to keep records of the initial survey and any EPA Reference Method 9 observations performed. If the observation results in an exceedance of the opacity limit, the Permittee is required to take corrective action and log all such actions. Any exceedance must be reported to ADEQ as an “excess emission”.
 - c. The Permittee must report to the Director any daily period during which the sulfur content of the fuel being fired in the machine exceeds 0.8 percent.

3. ICEs subject to NESHAP

- a. The Permittee must operate and maintain the stationary RICE in accordance with manufacturer's emission-related written instructions or develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
- b. The Permittee must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request Director to approve different maintenance requirements that are as protective as manufacturer requirements.
- c. The Permittee must maintain record of the catalyst pressure drop and exhaust temperature of the ICE.

C. Gasoline Dispensing Facility (GDF)

1. The Permittee must maintain a monthly record of the gasoline throughput of the GDF.
2. The Permittee must maintain a file of the typical Reid vapor pressure of gasoline stored and dates of storage.

D. Fugitive Dust Sources Monitoring

Point source fugitive dust sources are subject to 20 percent opacity standard and non-point sources are subject to the 40 percent opacity standard and other Article 6 requirements. Periodic monitoring for the opacity standard entails a monthly visible emissions survey by a certified Method 9 observer. If the survey appears to indicate opacity in excess of the standard, a Method 9 observation will be required. If the Method 9 reading documents an opacity level higher than the standard, the facility will be required to take suitable corrective action and report the incident as an "excess emission".

The Permit also contains applicable requirements for fugitive dust emissions. These regulations require the Permittee to employ various control methods to suppress particulate emissions. The permit lists the various methods of dust suppression that may be used. By not restricting the Permittee to use only one of the methods, the permit provides the flexibility required to facilitate employment of effective control measures.

IX. TESTING

A. Boilers

1. NO_x
 - a. The Permittee must conduct the performance test for the emission of NO_x from the stack of one boiler from each site within 12 months of the previous test. The Permittee must use EPA Reference Method 7 or 7E for testing of NO_x.
 - b. Annually thereafter, the Permittee must test one boiler from each site as decided by the Director.
2. Opacity

The annual performance test of visible emissions from the stack of each boiler when burning diesel must be conducted by a certified EPA Reference Method 9 observer using the procedures set forth in EPA reference Method 9.

B. ICEs

1. The Permittee must conduct initial performance test in accordance with Table 4 to NESHAP Subpart ZZZZ to show compliance with the emission limits for CO.
2. The Permittee must conduct subsequent performance test every 8,760 hours of operation of ICE or three years, whichever comes first.

X. AIR QUALITY IMPACT ANALYSIS

A. Introduction

As part of the Eurofresh, Inc. Title V permit application, an air quality impact analysis (i.e. modeling analysis, AERMOD) was conducted.

The purpose of the modeling analysis is to determine whether air quality impacts from proposed criteria pollutant emissions will cause or contribute to a violation of any air quality standard, or worsen an existing air quality problem. Applicable standards include the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. As discussed below, the dispersion modeling analysis did not document violations of any standards or guidelines.

B. Modeling Analysis Overview- NAAQS

Table 4 below shows the AERMOD results of NAAQS analysis for CO, NO₂, SO₂, PM₁₀ and PM_{2.5}. Background concentrations for CO, NO₂, SO₂, PM₁₀ and PM_{2.5} were used towards accounting for the final concentrations presented in the Table 3 below. Modeling has been performed for two different scenarios.

In the first scenario, the boilers were modeled as emitting continuously into the atmosphere through the stacks. All the ICEs were modeled as operating in the winter months. Hours of operation of boilers on diesel fuel were also spread over the winter months. For short term worst case impacts, both the boilers and ICEs were assumed to be operating continuously for 24 hours a day and the emission rate using diesel fuel was used.

In the second scenario, modeling was done in line with the operation of boilers at Willcox. The emissions from the boilers were split based on the hour of the day and modeled as volume source during the daylight hours (venting into the greenhouses) using natural gas and as point source beyond daylight hours using natural gas and diesel as the fuel.

Table 4: Modeling Analysis Results

Scenario I

| <i>Emission Specie</i> | <i>Averaging Period</i> | <i>Modeled Concentration, $\mu\text{g}/\text{m}^3$</i> | <i>Background Concentration, $\mu\text{g}/\text{m}^3$</i> | <i>Maximum Ambient Concentration, $\mu\text{g}/\text{m}^3$</i> | <i>NAAQS $\mu\text{g}/\text{m}^3$</i> |
|------------------------|-------------------------|---|--|---|--|
| SCENARIO I | | | | | |
| CO | 1-HR | 805.10* | 582 | 1387.1 | 40,000 |
| | 8-HR | 365.20* | 582 | 947.2 | 10,000 |
| NO _x | ANNUAL | 15.90 | 1.7 | 17.60 | 100 |
| PM _{2.5} | 24-HR | 19.40** | 9.7 | 29.1 | 35 |
| | ANNUAL | 0.5 | 3.6 | 4.1 | 15 |
| PM ₁₀ | 24-HR | 20.1*** | 54 | 74.1 | 150 |
| | ANNUAL | 0.6 | 22.1 | 22.7 | 50 |
| SO ₂ | 3-HR | 96.60* | 81.3 | 177.9 | 1,300 |
| | 24-HR | 28.90* | 23.6 | 52.5 | 365 |
| | ANNUAL | 0.32 | 1.6 | 1.92 | 80 |

* Represents the high 2nd high concentration

** Represents 98th percentile or 8th highest over a 4 year period

*** Represents the 5th highest concentration over a 4 year period

Table 4: Modeling Analysis Results (contd.)

Scenario II

| <i>Emission Specie</i> | <i>Averaging Period</i> | <i>Modeled Concentration, $\mu\text{g}/\text{m}^3$</i> | <i>Background Concentration, $\mu\text{g}/\text{m}^3$</i> | <i>Maximum Ambient Concentration, $\mu\text{g}/\text{m}^3$</i> | <i>NAAQS $\mu\text{g}/\text{m}^3$</i> |
|------------------------|-------------------------|---|--|---|--|
| CO | 1-HR | 804.1 * | 582 | 1386.1 | 40,000 |
| | 8-HR | 363.4 * | 582 | 945.4 | 10,000 |
| NO _x | ANNUAL | 16.2 | 1.7 | 17.9 | 100 |
| PM _{2.5} | 24-HR | 21.5** | 9.7 | 31.2 | 35 |
| | ANNUAL | 0.6 | 3.6 | 4.2 | 15 |
| PM ₁₀ | 24-HR | 23.6** | 54 | 77.6 | 150 |
| | ANNUAL | 0.6 | 22.1 | 22.7 | 50 |
| SO ₂ | 3-HR | 95* | 81.3 | 176.3 | 1,300 |
| | 24-HR | 25.2* | 23.6 | 48.8 | 365 |
| | ANNUAL | 0.34 | 1.6 | 1.94 | 80 |

* Represents the high 2nd high concentration

** Represents 98th percentile or 8th highest over a 4 year period

*** Represents the 5th highest concentration over a 4 year period

XI. INSIGNIFICANT ACTIVITIES

The applicant has requested that the 15 diesel storage tanks having capacity between 275 gallons to 25,000 gallons be categorized as “insignificant activities”. The Department agrees that the storage tanks are insignificant in accordance with A.A.C. R18-2-101.57(c).

XII. LIST OF ABBREVIATIONS

| | |
|-------------------|--|
| A.A.C. | Arizona Administrative Code |
| ADEQ | Arizona Department of Environmental Quality |
| AERMOD | American Meteorological Society/Environmental Protection Agency Regulatory Model |
| CFR | Code of Federal regulations |
| CO | Carbon Monoxide |
| CO ₂ | Carbon Dioxide |
| EPA | Environmental Protection Agency |
| GDF | Gasoline Dispensing Facility |
| GHG | Greenhouse Gas |
| HAPs | Hazardous Air Pollutants |
| HP | Horse Power |
| ICE | Internal Combustion Engine |
| MM Btu/hr | Million British Thermal Units per Hour |
| NAAQS | National Ambient Air Quality Standards |
| NESHAP | National Emission Standards for Hazardous Air Pollutants |
| NO _x | Nitrogen Oxides |
| NSPS | New Source Performance Standards |
| PM | Particulate Matter |
| PM ₁₀ | Particulate Matter Nominally less than 10 Microns |
| PM _{2.5} | Particulate Matter Nominally less than 2.5 Microns |
| PSD | Prevention of Significant Deterioration |
| PTE | Potential to Emit |
| RICE | Reciprocating Internal Combustion Engine |
| SO ₂ | Sulfur Dioxide |
| VOC | Volatile Organic Compound |
| TPY | Tons per year |