Lane Regional Air Protection Agency
Synthetic Minor Air Contaminant Discharge Permit

REVIEW REPORT

Dynea USA Inc.
475 28th Street, Springfield, Oregon **Permit No. 201221**

1. General Background Information

Dynea USA Inc., formerly Neste Resins, is a formaldehyde and resin manufacturing facility. Formaldehyde is produced at the facility by three (3) production plants: SF-1, SF-2, and SF-3. Two (2) of the plants convert methanol to formaldehyde using an oxidation process while one (1) plant converts methanol to formaldehyde using a dehydrogenation process. A Regenerative Thermal Oxidizer (RTO) controls the Volatile Organic Compounds (VOCs) and Hazardous Air Pollutants (HAPs) emissions from SF-1 and the resin plant. A Tail Gas Boiler (TGB) controls emissions from SF-2, while additionally providing steam for the plant. The emissions from SF-3 are controlled by a Catalytic Incinerator (CI). Other emissions include various storage tanks not vented to the three (3) control devices listed above and fugitive emissions from process equipment such as flanges, valves, and pumps. Total annual resin production at the facility is approximately 437 million pounds. The facility operates 8,760 hours per year (24 hours per day and 365 days per year).

2. Reasons for Permit Action

The facility operates a process listed in Table A, Part II, of LRAPA Title 34 and is, therefore, required to obtain a permit. The facility's ACDP expired on June 25, 2000; the permit was not renewed prior to the expiration date of June 25, 2005. The primary reason for the permit issuance is to renew the permit that expired June 25, 2000.

3. Enforcement History

Notice of Civil Penalty No. 02-2360 and Notice of Non-Compliance (NON) No. 2360 issued March 15, 2002, and February 6, 2002, respectively: Failure to provide the required written notification to LRAPA of an asbestos abatement project.

Notice of Civil Penalty No. 02-2361 and Notice of Non-Compliance No. 2361 issued April 18, 2002 and February 13, 2002, respectively: Failure to install a secondary seal on tank SM-9.

Notice of Non-Compliance No. 99-1743 issued February 16, 1999: Permit violation, for exceeding the Plant Site Emission Limits (PSELs).

Notice of Civil Penalty No. 97-1290 and Notice of Non-Compliance No. 1290 issued July 7, 1997, and September 18, 1997, respectively: Failure to install a flow meter at reactor catalytic incinerator firebox, failure to demonstrate compliance with NSPS Leak Detection and Repair (LDAR) requirements, failure to comply with LDAR record keeping requirements and failure to submit semi-annual LDAR reports to the Administrator/LRAPA.

Notice of Non-Compliance No. 92-19 issued June 25, 1992: For performing asbestos abatement projects without notifying LRAPA, and for not having a certified asbestos contractor perform the project.

4. Performance Test Results

The RTO, Tail-Gas Boiler, and Catalytic Oxidizer control devices were tested by SECOR in February and March of 2000. The tests measured emission rates in pounds per hour for Formaldehyde, Methanol, Phenol, Dimethyl Ether (DME -- a VOC but not a HAP), CO and total VOCs. The measurements were taken for the various operating scenarios depending on the function of the equipment and production. The results will be used as the emission factors to estimate emissions from the SF-1, SF-2, and SF-3 portions of the facility and are shown in the permit.

The average temperature of the vent stream (after the catalyst bed) of the Catalytic Incinerator during the most recent performance test (SECOR, 2000) at which compliance with the New Source Performance Standards of Subpart III was determined is the mean the inlet temperature of 270°C (28°C less would = **242°C** for reporting purposes) and the outlet temperature of 498°C. This would make the Delta T over the blocks 228°C (80% would =**182°C** for reporting purposes).

The RTO was tested in April of 1994 and destruction efficiencies of 98.45% for formaldehyde, 97.66% for phenol, and methanol at 99.18% were determined. The averaged total amount of HAPs emitted from the RTO was 2628 pounds per year. The production rate for SF-1 during the test was 10,800 pounds per hour.

5. Plant Site Emission Limits

Baseline Emissions Rate

The baseline emission rate for VOC is revised in this permit issuance and is reduced from 1978 levels of 172 tons because the facility installed a control device (RTO) to avoid major source and NESHAP applicability, and hence the reductions cannot be banked for future use. The VOC baseline emission rate is based on the current potential to emit for the facility operating under normal conditions (all processes and control devices operating). The analysis of the VOC potential to emit can be found in the letter from Dynea to LRAPA dated February 1, 2002.

The baseline emissions from NO_X and CO have been estimated for actual totals from the 1978 baseline year. Emissions from CO are from the uncontrolled (pre-RTO) SF-1 production line, as well as a natural gas-fired Cleaver Brooks boiler. Emissions from NO_X are from the SF-2 Zurn Tail-gas boiler operating 8,760 hours per year as well as emissions from the gas-fired Cleaver Brooks boiler. Emission details are found in the attachment to this report.

Pollutant	Baseline Emission Rate (tons/year)
CO	1,259
NO_X	10.6
SO_2	0.0
PM/PM_{10}	0.0
VOC	11.0

Plant Site Emission Limits (PSELs)

In accordance with LRAPA 34-060(5)(A), the PSELs in the permit will be based on projected operating conditions, as reflected in the permit application.

The annual PSELs for the facility have been set equal to the projected annual emissions rounded up to the nearest ton for each criteria pollutant plus an additional amount for CO and VOC to allow operational flexibility. The CO and VOC PSELs limit the facility to one (1) ton below the Significant Emission Rate (SER) for the respective pollutants. The contribution to the PSELs from each of the three (3) production lines are based on emission factors from source tests and expected hours of operation for the production line and control equipment. The contribution to the PSELs from the storage tanks (ST-1) are based on maximum design throughputs for the tanks and use EPA TANKs 4.0 to estimate emissions. The contribution to the PSELs from fugitive emissions (flanges, valves, pumps, etc.) are based upon site-specific sampling of each component and multiplied by 8,760 hours per year. The contribution to the PSELs from the Bryan boiler, Tail Gas Boiler natural gas burner, and RTO natural gas burner are based on the maximum design rate for the equipment and an operation schedule of 8,760 hours per year.

Limits on HAPs are set at 9 and 24 tons per rolling 12-month period, respectively as per LRAPA and ODEQ policy. The limits are set at one (1) ton minus the major source threshold to adequately ensure compliance and to serve as a buffer for inaccuracies in emission estimation procedures.

To show compliance with the VOC and HAP limits, the facility will be required to estimate emissions using the emission factors in the permit and hours of operations during the reporting period. Calculated totals will be rounded to the nearest whole ton (for example: a calculated total of 9.4 tons, when rounded to the nearest whole ton would equate to 9 tons).

Emission values less than 0.5 tons per year are not included in the PSELs as per DEQ *Permitting and Guidance Manual*. The following annual PSELs will be in the permit (all values are in tons per year).

Annual (Rolling 12-Month) PSEL
(tons)

	PM/PM_{10}	SO_2	NO_X	CO	VOC
Totals	**1**	**<0.5**	**19**	**39**	**50**

The Attachment to this Review Report contains the calculations of the PSELs for the combustion equipment. ST-1 emission estimate calculations are in the facility's application dated February 24, 2006.

Based upon a 39 tons per year CO limit, and a 1,259 tons per year baseline emission rate, the facility has 1,220 tons per year of unassigned emissions that are available only for internal offsets with LRAPA approval. There are no other unassigned emissions for other criteria pollutants.

6. Other Emission Limitations

LRAPA's process weight rule specifies limits on the emissions of particulate matter for specific processes as a function of the amount of material processed. [LRAPA 32-045(A)] This rule is intended for large sources of PM such as wood products facilities. Since PM emissions from the facility are from the combustion of fuel and are relatively small, the facility is expected to be in compliance with the process weight rule.

The permit includes general visible emissions limitations for the facility as well as general grain loading limitations for the facility.

7. Hazardous Air Pollutants (HAPs)

The facility is required to calculate emissions of HAPs on a rolling 12-month basis. Actual emissions of total HAPs estimated for the 2005 calendar year are presented in the following table.

Pollutant	Emissions tons/year
Phenol	2.7
Formaldehyde	3.2
Methanol	5.0
Total HAP	10.9

8. Typically Achievable Control Technology (TACT)

LRAPA Title 32-008 requires an existing emission unit at a facility to meet TACT if the emissions unit has emissions of criteria pollutants greater than ten (10) tons per year of any gaseous pollutant or five (5) tons per year of particulate, the emissions unit is not subject to the emissions standards under LRAPA Titles 32, 33, 39, or 46 for the pollutants emitted, and the facility is required to have a permit. The SF-1, SF-2, and SF-3 emit more than ten (10) tons per year of gaseous pollutants and are therefore required to meet TACT. LRAPA has determined that the RTO, Tail-gas boiler and Catalytic Oxidizer control devices meet TACT for these emission units at this facility.

9. New Source Review and Prevention of Significant Deterioration

Because the proposed PSELs for all regulated pollutants are below the Significant Emission Rates (SERs) in LRAPA Title 38, the facility is not subject to LRAPA's New Source Review (NSR) requirements for PM_{10} nor the Prevention of Significant Deterioration (PSD) requirements for SO_X, NO_X, CO, and VOC.

10. New Source Performance Standards (NSPSs)

SF-3 was installed in 1990 and since it was constructed after October 21, 1983, the air oxidation reactor and any recovery system it vents to is subject to NSPS Subpart III, Standards of

Performance for VOC Emissions from the Synthetic Organic Chemical Manufacturing Industry (SOCMI) Air Oxidation Unit Processes. The permit contains requirements from the NSPS Subpart III.

Because SF-3 was constructed after January 5, 1981, and is considered part of the SOCMI, the equipment in SF-3 is subject to the New Source Performance Standards Subpart VV, Standards of Performance for Equipment Leaks of VOCs in the Synthetic Organic Chemical Manufacturing Industry (SOCMI).

SF-2 is a distillation operation and was built in 1975 and, hence, is not subject to the requirements of NSPS Subpart NNN, Standards of Performance for VOC Emissions from SOCMI Distillation Operations, since it was constructed prior to the December 30, 1983 applicability date.

Based upon size and content vapor pressure, NSPS Subpart Kb, Standards of Performance for VOC Storage Tanks applies to various storage tanks at the facility. The permit contains the specific Subpart Kb tank applicability.

Because the standby boiler operates between 10 MM BTU per hour and 100 MM BTU per hour (13.6 MM BTU per hour) and because the boiler was constructed after June 9, 1989 (1999), the boiler is subject to the New Source Performance Standards (NSPS) for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR Part 60 Subparts A and Dc) including, but not limited to, record keeping of fuel usage and annual reporting. Because the facility burns only natural gas in the boiler and because the permit allows only the burning of natural gas in the boiler, there are no requirements for fuel amount totals and sulfur certifications in the permit. The facility is required to keep semi-annual records of the amount of natural gas burned as a requirement of the Subpart Dc.

11. General Recordkeeping Requirements

To ensure compliance with the annual PSELs, and other permit requirements, the facility is required to keep records of the following information for a period of two (2) years. The permit contains specific reporting and recordkeeping requirements for the SF-3 Catalytic Incinerator.

	Parameter	Minimum Recording Frequency
a.	Estimation of total VOC, total HAPs, and Individual HAPs rolling 12-month emissions(tons).	Monthly
b.	Temperature excursions in the destruction bed of the RTO below 1,400°F.	Hourly
c.	Temperature excursions in the exhaust gas from the Tail Gas Boiler below 125°C.	Hourly
d.	Hours of operation identifying the status of each SF-1, SF-2 and SF-3.	Daily
e.	Amount of natural gas burned in the standby boiler.	Semi-annual
f.	Amount of formaldehyde produced (lbs/year).	Monthly

The facility is also required to report any entries in the upset log as required per Condition G15 and the LRAPA-approved O&M (Operation and Maintenance) Plan.

The facility is also required to submit information as required in the permit for various NSPS requirements.

12. General Reporting Requirements

The facility is required to submit semi-annual reports by the 30th day after each semi-annual period. The reports are required to contain the rolling 12-month emission estimations for total VOCs, total HAPs, and individual HAP totals.

Other information to be included in the reports is specified in the permit for the various NSPS's.

13. Public Notice

The draft permit was on public notice from October 30, 2006 to November 29, 2006. No written comments were received during the 30-day comment period.

MAX/bp
12/14/06