

STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1103-AOP-R0 AFIN: 70-00059

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Lycus Limited
181 Cooper Drive
El Dorado, Arkansas 71730

3. PERMIT WRITER:

John Mazurkiewicz

4. NAICS DESCRIPTION AND CODE:

NAICS Description: All Other Basic Organic Chemical Manufacturing
NAICS Code: 325199

5. SUBMITTALS:

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
9/18/2014	Renewal: Minor Source to Title V	Production increase; permitting emergency engines

6. REVIEWER'S NOTES:

Lycus Ltd. (Lycus), formerly Garrison Industries, Inc., operates a specialty chemical production facility at 181 Cooper Drive in El Dorado. Prior to the issuance of this permit, the facility was authorized under Permit No. 1103-AR-7. As required by 40 CFR 63 Subpart VVVVVV, the facility has submitted an application for a Title V permit. Production limits have increased from 1,000,000 to 3,500,000 lbs of chemical product per year. Reactor equipment will double in order to meet production limit increases. New equipment will be routed to the existing scrubber.

The permitted emission changes associated with this permit activity include an increase by 0.2 tpy SO₂; 13.1 tpy CO; 5.4 tpy NO_x; 0.04 tpy HCl; 1.1 tpy Methanol; 3.66 tpy

Xylene, and a decrease by 0.2 TPY PM; 0.3 tpy PM10; 1.1 tpy VOC; 2.57 tpy Methyl Chloride; 0.27 tpy NH3, and 0.44 tpy 1,2-Dichloroethane.

7. COMPLIANCE STATUS:

The following summarizes the current compliance of the facility including active/pending enforcement actions and recent compliance activities and issues.

There are no current enforcement actions against the facility.

8. PSD APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)?

No

b) Is the facility categorized as a major source for PSD?

- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

No

If yes, explain why this permit modification is not PSD.

N/A

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
SN-01	Ammonia, 1,2-Dichloroethane, Methyl Chloride, HCl, Xylene, Methanol	40 CFR Part 63, Subpart VVVVVV - <i>National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources</i>
SN-02 and SN-03	VOC, SO ₂ , PM, PM ₁₀ , CO, NO _x	40 CFR Part 60, Subpart Dc - <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</i>
SN-04	Acrolein, Formaldehyde	40 CFR Part 63, Subpart ZZZZ - <i>National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources</i>
SN-05 and SN-06	VOC, SO ₂ , PM, PM ₁₀ , CO, NO _x	40 CFR Part 60, Subpart JJJJ - <i>Standards of</i>

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
		<i>Performance for Stationary Spark Ignition Internal Combustion Engines</i>

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. AMBIENT AIR EVALUATIONS:

a) Reserved

b) Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m³), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Acrolein	0.02	0.002	1.22E-03	Yes
Arsenic	0.01	0.001	8.80E-06	Yes
Barium	0.5	0.055	1.94E-04	Yes
Beryllium	0.002	0.0002	5.28E-07	Yes
Cadmium	0.01	0.001	4.84E-05	Yes
Chromium	0.01	0.001	6.16E-05	Yes
Cobalt	0.02	0.022	3.70E-06	Yes
Cobalt	0.02	0.002	3.70E-06	Yes
Copper	0.2	0.022	3.74E-05	Yes

Pollutant	TLV (mg/m ³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Ethylene Dibromide	0.3	0.033	8.83E-06	Yes
Formaldehyde	0.37	0.041	1.28E-02	Yes
Lead	0.05	0.006	2.20E-05	Yes
Manganese	0.1	0.011	1.67E-05	Yes
Mercury	0.03	0.003	1.14E-05	Yes
Molybdenum	0.5	0.055	4.84E-05	Yes
PAH	0.2	0.022	2.82E-06	Yes
Selenium	0.2	0.022	1.06E-06	Yes
Vanadium	0.05	0.006	1.01E-04	Yes

Based on Department procedures for review of non-criteria pollutants emissions are below the thresholds of concern because ADEQ has limited the implementation or use of the strategy to any single NCAP with emissions equal or greater than 10 tons per year or any NCAP with a TLV less than 1 mg/m³, regardless of emission rates.

2nd Tier Screening (PAIL)

N/A

c) H₂S Modeling: N/A

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	Testing	4.5E-03 lb 1,2-Dichloroethane/ lb product 5.09E-03 lb Xylene/lb product 2.70E-04 lb HCl/lb product 1.30E-04 lb NH ₃ /lb product 3.80E-04 lb SO ₂ /lb product 4.10E-04 lb CH ₃ Cl/lb product	Condensers, Scrubbers	99.9% Overall	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
		6.20E-04 lb MeOH/lb product			
02	AP-42 Small Boilers	7.5E-03 lb PM/MMBtu 7.5E-03 lb PM ₁₀ /MMBtu 6.0E-04 lb SO _x /MMBtu 5.4E-03 lb VOC/MMBtu 8.24E-02 lb CO/MMBtu 9.80E-02 lb NO _x /MMBtu	None	---	
03	AP-42 Small Boilers	7.5E-03 lb PM/MMBtu 7.5E-03 lb PM ₁₀ /MMBtu 6.0E-04 lb SO _x /MMBtu 5.4E-03 lb VOC/MMBtu 8.24E-02 lb CO/MMBtu 9.80E-02 lb NO _x /MMBtu	None	---	
04	AP-42 Chapter 3.2	1.94E-02 lb PM/ MMBtu 9.50E-03 lb PM ₁₀ / MMBtu 5.88E-04 lb SO _x / MMBtu 2.96E-02 lbVOC/ MMBtu 3.72E+00 lb CO/ MMBtu 2.27E+00 lb NO _x / MMBtu	None	---	
05	AP-42 Chapter 3.2	1.94E-02 lb PM/ MMBtu 9.50E-03 lb PM ₁₀ / MMBtu 5.88E-04 lb SO _x / MMBtu 2.96E-02 lbVOC/ MMBtu 3.72E+00 lb CO/ MMBtu 2.27E+00 lb NO _x / MMBtu	None	---	
06	AP-42 Chapter 3.2	1.94E-02 lb PM/ MMBtu 9.50E-03 lb PM ₁₀ / MMBtu 5.88E-04 lb SO _x / MMBtu 2.96E-02 lbVOC/ MMBtu 3.72E+00 lb CO/ MMBtu 2.27E+00 lb NO _x / MMBtu	None	---	

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
None.				

14. MONITORING OR CEMS:

Monitoring and/or CEMS is not required in this permit.

15. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
01 (A, B, and C)	Pounds of product	3,500,000 per year	Monthly	No
	Time, date, temperature of carbon bed regeneration	Max of 4 days between regeneration of main beds Max of 7 days between regenerations of vent beds	As occurs	No
	Caustic pH (scrubber)	>10.0	4 hours	No
02 and 03	Natural Gas Usage	fuels fired	Monthly	No
04 and 06	Operating Hours, Emergency and Non-Emergency	100 hours/year; see SC #30 and 29	Occurrence	No
	Natural Gas Usage	fuels fired	Monthly	No

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
02 and 03	5%	Departmental Guidance	Pipeline quality natural gas fuel only

SN	Opacity	Justification for limit	Compliance Mechanism
04 through 06	20%	Departmental Guidance	Pipeline quality natural gas fuel only

17. DELETED CONDITIONS:

Former SC	Justification for removal
23	Compliance is demonstrated only by burning pipeline quality natural gas
24	Compliance is demonstrated only by burning pipeline quality natural gas

18. GROUP A INSIGNIFICANT ACTIVITIES:

Source Name	Group A Category	Emissions (tpy)						
		PM	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Tank F – High Alkaline Waste Water Storage Tank – 10,000 gallon	A-13	-	-	0.0035	-	-	0.0035	0.0035
Tank C – Byproduct Storage Tank – 10,650 gallon	A-13	-	-	0.010	-	-	0.010	0.010
Tank 5 – Byproduct Storage Tank – 11,159 gallon	A-13	-	-	0.044	-	-	0.044	0.044
Tank 6 – Byproduct Storage Tank – 11,159	A-13	-	-	0.044	-	-	0.044	0.044
Hammermill – routed to Product Recovery Scrubber	A-13	0.1	-	-	-	-	-	-
Cooling	A-13	3.1	-	-	-	-	-	-

Source Name	Group A Category	Emissions (tpy)						
		PM	SO ₂	VOC	CO	NO _x	HAPs	
							Single	Total
Tower (600 gpm)								
EDC Tank	A-13	-	-	0.010	-	-	0.010	0.010
Spent EDC Tank	A-13	-	-	0.010	-	-	0.010	0.010
Xylene Tank	A-13	-	-	0.010	-	-	0.010	0.010
Methanol Tank	A-13	-	-	0.010	-	-	0.010	0.010
Laboratory Vents	A-5	-	-	<0.1	-	-	<0.1	<0.1
Tank 3 – Caustic Storage Tank	A-4	-	-	-	-	-	-	-

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

List all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1103-AR-7

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 08-25-14

Facility Name: Lycus Ltd.
 Permit Number: 1103-AOP-R0
 AFIN:70-00059

\$/ton factor	23.89	Annual Chargeable Emissions (tpy)	100
Permit Type	Modification	Permit Fee \$	1000

Minor Modification Fee \$	500
Minimum Modification Fee \$	1000
Renewal with Minor Modification \$	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	<input checked="" type="checkbox"/>
If Hold Active Permit, Amt of Last Annual Air Permit Invoice \$	0
Total Permit Fee Chargeable Emissions (tpy)	4.07
Initial Title V Permit Fee Chargeable Emissions (tpy)	

HAPs not included in VOC or PM:

Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride

Air Contaminants:

All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		1.8	1.6	-0.2		
PM ₁₀		1.8	1.6	-0.2	-0.2	1.6
SO ₂		0.7	0.9	0.2	0.2	0.9
VOC		17.9	16.8	-1.1	-1.1	16.8
CO		3.6	16.7	13.1		
NO _x		14.2	19.6	5.4	5.4	19.6
NH ₃	<input checked="" type="checkbox"/>	0.5	0.23	-0.27	-0.27	0.23
HCl	<input checked="" type="checkbox"/>	0.44	0.48	0.04	0.04	0.48

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Total Other HAPs	<input type="checkbox"/>	16.06	18.97	2.91		