STATEMENT OF BASIS

For the issuance of Draft Air Permit # 1527-AOP-R12 AFIN: 63-00010

1. PERMITTING AUTHORITY:
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Almatis, Inc.
4701 Alcoa Road
Bauxite, Arkansas 72011

3. PERMIT WRITER:

Parviz Mokhtari

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Alumina Refining
NAICS Code: 331311

5. SUBMITTALS:

1/20/2010, 9/3/2010

6. REVIEWER'S NOTES:

Almatis, Inc. located at 4701 Alcoa Road in Bauxite, AR is a manufacturer of various forms of alumina. Almatis submitted a renewal application and requested to renew the facility's Title V air permit. In addition to renewing the facility's Title V air permit, the following permitting actions are necessary:

- Remove SN-060BH03, SN-060BH04, SN-060BH05, SN-060BH0285, SN-060BH0406, SN-060BH0510, SN-060BH0528, SN-060BH0573, SN-060BH0602, SN-060EP0241, SN-141BH02, and SN-141BH03 from the permit.
- Add a new bucket elevator, replace a product screen, install air slides to replace the belt conveyor, revising ductwork for existing belt conveyor and loading system and replace the existing 415-12 Dust Collector with a larger capacity unit.

The total permitted annual emission rate limit decreases associated with this renewal include: 99.6 tons per year (tpy) PM, 69.6 tpy PM_{10}, 4.4 tpy SO_2, 0.08 tpy VOC, 26.1 tpy CO, and 16.1 tpy NO_X

7. COMPLIANCE STATUS:

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

Currently, there is no pending enforcement against this facility.

8. PSD APPLICABILITY:

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

b. Is the facility categorized as a major source for PSD? Y
Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list?

If yes, explain why this permit modification not PSD? There is not any physical change or any change in operation method due to this renewal. The permitted emission rate limit decreased due to this renewal.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
046BL01 046BL02 046BL03 046BL04 046BL05	fuel record keeping only	NSPS Part Dc
451BH011 451BH015	PM, Opacity	NSPS Subpart UUU
426BH3314 405BH0134 435BH0760 420BH07	PM, Opacity	NSPS Subpart LL

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING:

Criteria Pollutants
Examination of the source type, location, plot plan, land use, emission parameters, and other available information indicate that modeling is not warranted at this time.

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu g/m^3$)	Averaging Time	Highest Concentration ($\mu g/m^3$)	% of NAAQS
PM_{10}	206.4	50	Annual	24	48
		150	24-Hour	146.8 (110.8+36)	97.8
SO_2	8.6	80	Annual	3.6	4.5
		1300	3-Hour	38.4	3
		365	24-Hour	20.6	5.7
VOC	73.4	0.12	1-Hour (ppm)	------	------
CO	73.1	10,000	8-Hour	147.6	1.5
		40,000	1-Hour	254.4	0.7
NO_X	152.8	100	Annual	12.6	12.6
		188	1-Hour	----	----
Pb	---	0.15	Rolling 3-month Period over 3 years (not to be exceeded in any 3 month period)	-----	-----

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/m^3), 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?
Formaldehyde	1.5	0.17	0.03	Y
Hydrogen Fluoride	2.45	0.27	58.1	N
Diethanolamine	1	0.11	0.4	N

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Diethanolamine	10	2.3	Y

Pollutant	Average Period	CA OEHHA REL($\mu g/m^3$)	Modeled Concentration ($\mu g/m^3$)	Pass?
Hydrogen Fluoride	1 hour	240	101.7	Y
	Annual	14	1.87	Y

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
All Baghouses		PM- 0.064799 grams/grain			
All Natural Gas Fired Sources	AP-42	NO_X-100 $lb/10^6$ ft^3 CO-84 $lb/10^6$ ft^3 PM-7.6 $lb/10^6$ ft^3 SO_2 -0.6 $lb/10^6$ ft^3 VOC- 5.5 $lb/10^6$ ft^3	None		-----

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
143FHE011 And 451BH014	Testing	VOC – 0.009452 lb VOC/lb silane Formaldehyde - 1.1905E-6 lb HAP/lb silane	N/A	N/A	VOC emissions from SN-451BH011 & 451BH014 Combustion: (12000 ft3/106 hr)(5.8 lb/ft3) = 0.0696 lb/hr (0.0696 lb/hr)(8760 hr/yr)(1/2000 ton/lb) = 0.3 TPY Coating Process: (0.009452 lb VOC/lb product)(5500 lb product /hr) = 51.986 lb/hr (0.009452 lb VOC/lb/product)(8.4 MM lb product /yr)(1/2000 ton/lb) = 39.7 TPY Total: 0.0696 + 51.986 = 52.05 = 52.1 lb/hr 0.3 + 39.7 = 40 = 40 TPY
Combustion sources 451	AP-42	NO_X-100 lb/10^6 ft^3 CO-84 lb/10^6 ft^3 PM-7.6 lb/10^6 ft^3 SO_2 -0.6 lb/10^6 ft^3 VOC- 5.5 lb/10^6 ft^3			
405BH0133	Grain Load Testing AP-42*1.25 Testing*2 AP-42	PM- 0.064799 grams/grain NO_X- 19.6 lb/hr CO – 84 lb/10^6 ft^3*1.25 SO_2 – 1 lb/hr VOC – 5.5 lb/10^6 ft^3	Baghouse	PM -98%	
405EP0233	Old limit Testing AP-42*1.25 Testing*2 AP-42	PM- 25 lb/hr NO_X- 19.6 lb/hr CO – 84 lb/10^6 ft^3*1.25 SO_2 – 1 lb/hr VOC – 5.5 lb/10^6 ft^3	ESP	PM -99%	

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
HF emissions from 405BH0133 and EP0233	Stack Testing	915 lb HF per ton Aluminum Fluoride	N/A	None	The emission factor, 915 lb HF per ton Aluminum Fluoride, is from the stack test conducted in January and February 2001. Emission rates are based on the aluminum fluoride feed rate of 127 lb/hr and 478,688 pounds/yr. Estimated emission rates are; (127 lb AlF3/hr)(1/2000 ton/lb)(915 lb HF/ton) = 58.06 lb/hr round up to 58.1 lb/hr (478,688 lb AlF3/yr)(1/2000 ton/lb)(915 lb HF/ton)(1/2000 ton/lb) = 109.49 ton/yr round up to 109.5 ton/yr
425EP04	Ap-42 PM Testing	NO_X-100 lb/10^6 ft^3 CO-84 lb/10^6 ft^3 PM-23 lb/hr SO_2 -0.6 lb/10^6 ft^3 VOC- 5.5 lb/10^6	ESP	PM -99%	
SN-426EP06 and SN-426EP07	Stack Test for NO_X	36.81 lb/hr X 1.1 (Safety Factor)	ESP	99%	based on the stack test results of the samples May 2008

13. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
046BL01 thru 05	CO NO_X	7E 10	Every 5 years	Department Guidance
415BH011 415BH015	PM	5	Initial	NSPS Subpart UUU
405BH0133 405EP0233 425EP04 426EP06 426EP07	PM/PM_{10} CO NO_X	5 or 201A 7E 10	Annual or Bi-annual	Department Guidance
405BH0133 405EP0233	HF	26	Annual or Bi-annual	Department Guidance
426BH3314 405BH0136 451BH014 451BH0760 400BH09 420BH07	PM	5 or 17	Within 180 days of startup	NSPS Subpart LL
415BH0001 through 415BH0018	PM	5 or 17	Within 180 days of startup	NSPS Subpart LL

SN	Pollutants	Test Method	Test Interval	Justification
Stack tests	*Stack testing be performed on one source in each of the following groups; Test 1: 415 BH02, 415 BH 03, 415 BH04 and 415 BH05 Test 2: 415 BH01, 415 BH06, 415 BH07, 415 BH09, 415 BH11, 415 BH12, 415 BH13 and 415 BH14 Test 3: 415 BH08 and 415 BH10 Test 4: 415 BH15 Test 5: 415 BH16. 415 BH17 and 415 BH18 *The performance tests for the emissions form SN-426BH3314 were performed on December 7, 2006 and August 5, 2010. *The performance tests for the emissions form SN-426BH3314 were performed on December 7, 2006 and August 5, 2010. * Initial Stack test was performed at SN-046BL01 on July 2, 2010 *The initial test was performed on the SN-405BH0133 on July 1, 2010. * The initial test was performed on the SN-405EP0233 on August 6, 2010. *The performance tests for the emissions form SN-426EP06 and SN-426EP07 were performed on June 29, 2010 and June 30, 2010, respectively. *The performance test for the emissions form SN-451BH015 was performed on July 18, 2002.			

14. MONITORING OR CEMS

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
There is no monitoring or CEMs required by 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)
046BL01-05	40 CFR Part 60, Subpart Dc	None	Monthly	Y
415BH015 415BH011	Records of initial tests	None	Once	Y
415BH011 and 415BH014	silane coated alumina trihydrate	8.4 MM lb/12 month rolling total (Combined for SN-415BH011 and SN-415BH014)	Monthly	Y
Hydrate Section	Silane coated alumina trihydrate production	8.4 million pounds	Monthly	Y
143FHE01	VOC Formaldehyde	9.5 0.02	Monthly	Y
143FHE01	Silane	2 million lbs	Monthly	Y
405BH0133 405EP0233	Aluminum fluoride feed rate	127 lb/hr and 109.5 tpy HF emissions	Daily and monthly	Y
425AUC01	Alumina load-out	20,000 tons/12 mo	Monthly	Y
425AUC01	Alumina load-out	20,000 tons/12 mo	Monthly	Y
415BH0001 through 415BH0018	Records of initial performance tests	None	Once	Y

16. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
Appendix A of the permit is a summary of all the opacity requirements in the permit.			

17. DELETED CONDITIONS:

Former SC	Justification for removal
33, 34, 35	SN-060BH0573 and SN-060EP0241 were removed from service.

18. GROUP A INSIGNIFICANT ACTIVITIES

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
							Single	Total
Open Tanks (2), Building 45C Tanks, filtrate and Beta Product	A-4							
Causticization Reactor	A-4							
Dump Chute, east side of Building 400	A-13							
Dump Chute, middle tank on north side of Building 400	A-13							
Clean-Out Chute, southwest corner of Building 410	A-13							
Clean-Out Chutes (3), west end of Building 451	A-13							
Clean-Out Chute from auger screw, northwest end of Building 451	A-13							
Clean-Out Chute to dumpster on ground, west end of Building 55	A-13							
Dump Chute, 5 from bins to ground along east side of Building 415	A-13							
Dump Chute, upper floors to dumpster in dock area on south end of Building 415	A-13							
Dump Chute, Building 415 railcars loading station to ground	A-13							
Dump Chute from second floor to ground, north side of Building 420A	A-13							

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
							Single	Total
Clean-Out Chute on northeast corner of Building 425	A-13							
Dump Chute to dumpster, east end of dock area on north side of Building 425	A-13							
Dump Chute to contained area, west end of dock area on north side of Building 425	A-13							
Dump Chute from fourth floor, north side of Building 425	A-13							
Dump Chute to contained area on northeast corner of Building 426 to converter wing	A-13							
Dump Chute to under bulk loading belt, south side of Building 426 in dock area	A-13							

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
1527-AOP-R11

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

Phillip Murphy

Phillip Murphy, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 12-15-10

Facility Name: Almatis
Permit Number: 1527-AOP-R12
AFIN: 63-00010

$/ton factor	22.07	Annual Chargeable Emissions (tpy)	1682.2
Permit Type	Minor Mod	Permit Fee $	500

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	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	-120.9
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	☑	897.8	798.2	-99.6	-99.6	798.2
PM_{10}	☐	860.9	791.3	-69.6		
SO_2	☑	40.2	35.8	-4.4	-4.4	35.8
VOC	☑	70.4	69.6	-0.8	-0.8	69.6
CO	☐	344.9	318.8	-26.1		
NO_X	☑	685.2	669.1	-16.1	-16.1	669.1
Formaldehyde	☐	0.02	0.07	0.05		
Diethanolamine	☐	1.5	1.5	0		
Hydrogen Fluoride	☑	109.5	109.5	0	0	109.5