STATEMENT OF BASIS

For the issuance of Draft Air Permit # 0620-AR-11 AFIN: 33-00002

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

   Unimin Corporation
   Main Street
   Guion, Arkansas 72540

3. PERMIT WRITER:

   Andrea Sandage

4. PROCESS DESCRIPTION AND NAICS CODE:

   NAICS Description: Industrial Sand Mining,
   Custom Compounding of Purchased Resins
   NAICS Code: 212322, 325991

5. SUBMITTALS:

   2/1/2012 2/6/12

6. REVIEWER'S NOTES:

Unimin Corporation owns and operates a silica sand mine and processing plant in Guion (Izard County). This De minimis permit modification is being issued to replace BE-08 bucket Elevator for SN-02 with no change in permitted capacity, add HO-301 Rail Car Hopper for SN-46, and add WF-501 Weigh Feeder for SN-55. Typographical emission errors will be corrected as follows: SN-39 - PM_{10} was 0.2 lb/hr; should be 0.7 lb/hr, SN-11 - source was removed but PM emissions were not removed, SN-16 - source was removed but PM emissions were not removed, and SN-57 - PM was 0.1 tpy; should be 0.3 tpy. The total permitted emissions decreases are 4.9 tpy PM.

7. COMPLIANCE STATUS: No changes

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

There are currently no enforcement issues or actions against the facility at this time.

8. PSD APPLICABILITY: No changes

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? N
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 is not PSD?

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Facility-wide	PM/PM_{10}	NSPS Subpart OOO
SN-58	NO_x, CO, VOC, HAP	40 CFR 60, Subpart JJJJ 40 CFR 63, Subpart ZZZZ

10. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

11. MODELING: No changes

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.

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	0.165	2.1610	Fail

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Phenol	434.19	47.761	1.4400	Pass

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?
Formaldehyde	15.00	8.22	Yes

Other Modeling:

12. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01	AP-42	Lb/MMcf, lb/ton, lb/1000 gal	Wet Scrubber and Cyclone	99.0%	Controlled
02	AP-42	Various lb/ton	Wet Scrubber	98.5%	Controlled - 80% for BC-14,15,16,17,BE-06,07,08,09
02A	AP-42	lb/ton	N/A	N/A	Uncontrolled
03 to 30	AP-42	Various lb/ton	N/A	N/A	Uncontrolled
31	AP-42	lb/ton PM 0.056 PM_{10} 0.0024	N/A	N/A	Uncontrolled Bulk Bagging Operation
32 & 33	AP-42	lb/ton PM 0.00014 PM_{10} 0.000046	Wet material	N/A	Controlled
34	Stack test data	lb/ton PM 0.00056	Wet Material	N/A	Controlled

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
		PM_{10} 0.000206			
35, 36, & 38	AP-42 Section 11.19.2	lb/ton PM 0.003 PM_{10} 0.0012	N/A	N/A	Uncontrolled
37	AP-42 Section 11.19.2	lb/ton PM 0.0054 PM_{10} 0.0024	N/A	N/A	Uncontrolled
39	AP-42 Section 13.2.4	lb/ton PM 0.00925 PM_{10} 0.00324	N/A	N/A	Uncontrolled
40	AP-42 Section 3.3	lb/MMBtu PM 0.31 PM_{10} 0.31 SO_2 0.29 NO_x 4.41 VOC 0.36 CO 0.95	N/A	N/A	Uncontrolled
41	AP-42 Sections 11.19 (8/04) 8.19 (9/91)	Feed Bin – lb/ton PM 0.056 PM_{10} 0.0024 Screen - lb/ton PM 0.025 PM_{10} 0.0087	Fabric Filter	99.99%	Controlled
42	AP-42 Sections 11.19 (8/04) 8.19 (9/91)	Conveyor - lb/ton PM 0.0030 PM_{10} 0.0011 Storage/Loadout - lb/ton PM 0.0560 PM_{10} 0.0024	Fabric Filter	99.99%	Controlled
43	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	Fabric Filter	86.7%	Controlled
44, 45	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	N/A	N/A	Uncontrolled
46	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	Baghouse	PM – 95.3% PM_{10} – 90.4%	Controlled
47	AP-42 Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	BC/BE – lb/ton PM 0.0030 PM10 0.0011 Tank – lb/ton PM 0.056 PM_{10} 0.0024	Baghouse	PM - 99% PM_{10} – 94.7%	Controlled
48	AP-42 Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	BC/BE/CLR – lb/ton PM 0.0030 PM10 0.0011 WH/WB/Tank – lb/ton	Baghouse	PM - 99.4% PM_{10} – 98.0%	Controlled

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
		PM 0.056 PM_{10} 0.0024			
49	AP-42 Table 1.4-1& 2 (7/98) Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	Heater - lb/MMscf 7.6 PM/PM_{10} 0.6 SO_2 100.0 NO_x 5.5 VOC 84.0 CO BC/BE – lb/ton PM 0.0030 PM10 0.0011 DT/WH/WB – lb/ton PM 0.056 PM_{10} 0.0024 CLS – lb/ton PM 0.30 PM_{10} 0.072	Baghouse	PM - 97.3% PM_{10} – 86.0%	Heater 6 MMBtu/hr
52	AP-42 Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	Conveyor – lb/ton PM 0.0030 PM10 0.0011 Tank – lb/ton PM 0.056 PM_{10} 0.0024	Baghouse	PM - 95.1% PM_{10} – 78.4%	Controlled
53	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	Baghouse	PM - 94.4% PM_{10} – 91.5%	Controlled
54	AP-42 Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	Conveyor – lb/ton PM 0.0030 PM10 0.0011 Loadout – lb/ton PM 0.056 PM_{10} 0.0024	Baghouse	PM - 98.1% PM_{10} – 88.0%	Controlled
55	AP-42 Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	Conveyor – lb/ton PM 0.0030 PM10 0.0011 Loadout – lb/ton PM 0.056 PM_{10} 0.0024	Baghouse	PM - 99.4% PM_{10} – 94.9%	Controlled
56	AP-42 Table 1.4-1& 2 (7/98)	Heater - lb/MMscf 7.6 PM/PM_{10} 0.6 SO_2 100.0 NO_x 5.5 VOC 84.0 CO HAPs % by weight Phenol – 1% Formaldehyde – 1.5 % Methanol – 1% of Form Ethanol – 19.9 %	RTO	96%	RTO 1.9 MMBtu/hr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
		Ammonia – 0.005%			
57	AP-42 Table 11.19.2-2(08/04) Table 8.19.1-1 (9/91)	BE/SC – lb/ton PM 0.0030 PM10 0.0011 DS/DT/WH – lb/ton PM 0.056 PM_{10} 0.0024	Baghouse	PM - 98.4% PM_{10} – 88.8%	Controlled
58	AP-42 Table 3.2-2	lb/MMBtu 9.91E-03 PM 7.71E-05 PM_{10} 5.88E-04 SO_2	NONE	N/A	3.46185 MMBtu/hr 4SLB
	Manufacturer's Specification	g/Hp-hr 0.7 VOC 2.7 CO 1.0 NO_x			
59	Tanks 4.0.9d	Varies	NONE	N/A	
66	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	NONE	N/A	
67	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	NONE	N/A	
68	AP-42 Table 8.19.1-1 (9/91)	Tank – lb/ton PM 0.056 PM_{10} 0.0024	NONE	N/A	
69	AP-42 Table 11.19.2-2(08/04)	lb/ton PM 0.0030 PM_{10} 0.0011	NONE	N/A	

13. TESTING REQUIREMENTS: No change

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01, 02, 27, 43	Particulate Matter Concentration	5 or 17	Initial Performance test	To verify NSPS limits
56	HAP, VOC	320	Initial	SC 41

14. MONITORING OR CEMS - No change

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)
56	Operating Temperature – above 1500° F	CEM .	Continuous	N

15. RECORDKEEPING REQUIREMENTS: No change

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)
Facility (fixed)	Processing of Silica Sand material	Confidential records of material processed maintained on site.		Monthly	N
Portable crushing plant	Processing of Silica Sand material	Confidential records of material processed and fuel usage maintained on site.		Monthly	N
56	Formaldehyde	% by weight		Monthly	N
		GP 664G26	0.1%		
		GP 639G23	1.5 %		
	Phenol	GP 664G26	1.0%		
	VOC	GP 664G26	0.11%		
		GP 639G23	2.0%		
		Chembetaine	20.8%		
58	Hours of Operation	500 hrs/yr		Monthly	Y
	Conducted Maintenance			As required by manufacturer	N

16. OPACITY: No change

SN	Opacity	Justification for limit	Compliance Mechanism
01	10	Dept Guidance	Daily observation

SN	Opacity	Justification for limit	Compliance Mechanism
02	10	NSPS	Daily observation
02A	10	NSPS	Daily observation
03 through 08	10	NSPS	Daily observation
09	20	Dept. Guidance	Daily observation
14 & 15	20	Dept. Guidance	Daily observation
16 & 17	20	Dept. Guidance	Daily observation
18 & 19	10	Dept. Guidance	Daily observation
20 & 21	20	Dept. Guidance	Daily observation
22, 23 , & 24	10	NSPS	Daily observation
25	20	Dept. Guidance	Daily observation
26 & 27	15	NSPS	Daily observation
28 & 29	10	NSPS	Daily observation
30	20	Dept. Guidance	Daily observation
31	10	NSPS	Daily observation
32-34	10	NSPS	Annual Inspection
35	20	Dept. Guidance	Daily observation
36	20	Dept. Guidance	Daily observation
37	20	Dept. Guidance	Daily observation
38	20	Dept. Guidance	Daily observation
39	20	Dept. Guidance	Daily observation
40	20	Dept. Guidance	Daily observation
41	20	Dept. Guidance	Daily observation

SN	Opacity	Justification for limit	Compliance Mechanism
42	20	Dept. Guidance	Daily observation
43-55, 57, 67, 69	10	Dept. Guidance	Daily observation
56	0	Dept. Guidance	Daily observation
58	5	Dept. Guidance	Daily observation
59	0	Dept. Guidance	Daily observation

17. DELETED CONDITIONS: no changes

Former SC	Justification for removal
14	The equipment is not Subject to Subpart OOO

18. GROUP A INSIGNIFICANT ACTIVITIES – No change

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
Four (4) Reddy fuel burning heaters < 1.0 MMBtu/hr	A-1							
Tank TA-01 (Diesel), 15,000 gallon	A-13			0.01				
Tank TA-02 (Gasoline), 2,000 gallon	A-13			0.32				
T-404 Hexamethylene Tetramine Feed Tank – 11,850 gallons	A-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T-412 Chembetaine Tank – 700 gallons	A-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source Name	Group A Category	Emissions (tpy)						
		PM/PM_{10}	SO_2	VOC	CO	NO_x	HAPs	
							Single	Total
T-413 Silicone Tank – 700 gallons	A-3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T-636 Process Water Tank – 11,850 gallons	A-13	0.0	0.0	0.0	0.0	0.0	0.0	0.0

19. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

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

Permit #
0620-AR-10

20. CONCURRENCE BY:

The following supervisor concurs with the permitting decision.

Paula Parker, P.E.

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Minor Source

Revised 08-30-11

Facility Name: Unimin Corporation
Permit Number: 0620-AR-11
AFIN: 33-00002

			Old Permit	New Permit
$/ton factor	22.65	Permit Predominant Air Contaminant	125.3	120.4
Minimum Fee $	400	Net Predominant Air Contaminant Increase	-4.9	
Minimum Initial Fee $	500			
		Permit Fee $	400	
Check if Administrative Amendment	☐	Annual Chargeable Emissions (tpy)	120.4	

Pollutant (tpy)	Old Permit	New Permit	Change
PM	125.3	120.4	-4.9
PM_{10}	42.2	42.2	0
SO_2	1	1	0
VOC	20.5	20.5	0
CO	21.4	21.4	0
NO_X	46.1	46.1	0
Formaldehyde	9.47	9.47	0
Phenol	6.31	6.31	0
Ammonia	0.01	0.01	0