

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 39-AOP-R0

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

2. APPLICANT:

3-M Industrial Mineral Products Division
65th and Arch Street, and Highway 365 and Walters Drive
Little Rock, Arkansas 72216

3. PERMIT WRITER:

Bryan Leamons

4. PROCESS DESCRIPTION AND SIC CODE:

SIC Description: Roofing Granules Mining and Manufacturing
SIC Code: 3295

5. SUBMITTALS: May 19, 1998 and various additional information from April 23, 1999, through February 15, 2001.

6. REVIEWER'S NOTES: This is the initial Title V operating permit. Actions include the consolidation of permit #39-AR-5 and #542-AR-1 into a single permit. This was determined appropriate because the facilities are within 3 miles of each other and more than 80% of the mining products are shipped by connecting privately owned railway from the quarry to the roofing granule facility.

New sources are added as minor modifications. See Attachment to this SOB. Other actions included are the inclusion of many unrecognized emission sources, explanation of NSPS non-applicability, and new compliance mechanisms for emission rates.

7. COMPLIANCE STATUS: No issues pending

8. APPLICABLE REGULATIONS:

A. Applicability

Did the facility undergo PSD review in this permit (Y/N) N
 Has this facility undergone PSD review in the past (Y/N) N Permit #

Is this facility categorized as a major source for PSD? (Y/N) Y
 \$ 100 tpy and on the list of 28 (100 tpy)? (Y/N) N
 \$ 250 tpy all other (Y/N) Y

The facility is “grandfathered” from PSD review until it makes physical modifications at or above a significance level.
 New sources included in this permit do not total more than 25 tpy PM or 15 tpy PM10, no other pollutants are involved with new sources. See “New Sources” Attachment to this document.

B. PSD Netting

Was netting performed to avoid PSD review in this permit? (Y/N) N

C. Source and Pollutant Specific Regulatory Applicability: NA

9. Emission Changes

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 542-AR-1 & 39-AR-5 (sum of both)	Air Permit 39-AOP-R0	Change
PM	538.24	992.86	454.62
PM ₁₀	287.50	719.89	432.39
NO _x	42.92	171.61	128.69
SO ₂	0	56.15	56.15
VOC	0.87	3.91	3.04
CO	10.74	88.50	77.76
lead	0	0.0108	0.0108
chromium	0	1.5009	1.5009

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 542-AR-1 & 39-AR-5 (sum of both)	Air Permit 39-AOP-R0	Change
arsenic	0	0.2840	0.2840
beryllium	0	0.0018	0.0018
cadmium	0	0.0947	0.0947
manganese	0	2.5584	2.5584

10. MODELING:

A. Criteria Pollutants

Pollutant	Emission Rate (lb/hr)	NAAQS Standard ($\mu\text{g}/\text{m}^3$)	Averaging Time	Highest Concentration ($\mu\text{g}/\text{m}^3$)	% of NAAQS
NO _x	265.1	100	Annual	2.065	2%
lead	0.0028	2	calendar quarter	0.04156*	0.6%

*lead requires calendar quarter averaging, the more conservative 24-hr average was used here

11. Non-Criteria Pollutants

Antimony compounds are determined to be permitted at *deMinimis* levels:

0.00009 lbs per hour * 4.38 = 0.0004 < 0.5 the RT therefore *deMinimis*

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The PAER was deemed by the Department 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 (Compounds of)	TLV (mg/m ³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Chromium	0.5	0.0055	0.3427	N
Arsenic	0.01	0.0011	0.0004	Y
Beryllium	0.01	0.0011	0.0005	Y
Cadmium	0.01	0.0011	0.0001	Y
Manganese	0.2	0.022	0.1847	N

2nd Tier Screening (PAIL)

SCREEN3 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 was deemed by the Department to be one one-hundredth of the Threshold Limit Value, as listed by the ACGIH.

Pollutant	(PAIL, µg/m ³) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m ³)	Pass?
Manganese	2	1.8	Y
Chromium	5	2.4	Y

12. CALCULATIONS:

Operational flexibility is maintained at the Arch Street quarry by overestimating some emissions from the stone processing operations. Emission rates from all equipment are calculated at maximum equipment capacities assuming that they are only controlled with wet suppression. Emissions for the baghouse control device, which is frequently used, were also estimated. This allows for numerous possibilities of equipment configuration that may or may not include the Tertiary Crusher Baghouse (SN-01). Emissions at Arch Street are dependent on a limited annual throughput.

College Station emissions are based on continuous annual operation at equipment rated maximum capacity except emissions that result from fuel oil combustion at the dryers and kilns. These sources may use natural gas year-round but only a limited annual amount of fuel oil is permitted. The tons per year values listed for these sources in this permit are the sum of the potential natural gas emissions and the limited fuel oil emissions. The lb/hr emissions listed are the worst case of either oil or gas.

Another variable operating scenario at the College Station plant involves the transport of material from the pugmills in the crushing and screening area to various stockpiles. The two alternatives are truck transport and a conveyerized transport system. Emissions have been estimated both ways and are double counted in this permit to provide maximum flexibility.

See calculations attachment to this document. Note that some emission rates are higher than the attached calculation sheet. 3-M requested to be permitted at rates listed in previous permits which are based on older factors. SN-01 rates were requested to be lowered to levels from previous permits. A test condition was installed at this source for verification.

13. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
scrubbers & SN-01	PM	5/17	initial	3-M supplied factors

14. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Recorded Item	Limit	Frequency	Report
01-58	Arch Street throughput	3 MM tons/yr	monthly	Y

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SN	Recorded Item	Limit	Frequency	Report
01,101-108,110-119 124,125,128,129,150-153	baghouse opacity	5%	weekly	Y
108,111-113,116	diesel fuel	2.5 MM gal/yr	monthly	Y
108,111-113,116	deisel S content	0.3% by weight	per delivery	Y

15. OPACITY

SN	Opacity	Justification	Compliance Mechanism
all sources (excluding baghouses)	20/40%	dept. guidance for post/pre 1972 sources	wet suppression
baghouses	5%/20% for baghouses that smoke	dept. guidance	daily recordkeeping, observation schedule

16. DELETED CONDITIONS:

None

17. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

List all active permits for this facility which are voided/superseded/subsumed by issuance of this permit.

Permit Numbers
542-A & AR 1
39-A & AR 1 thru 5

18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Thomas Rheaume, P.E.