STATEMENT OF BASIS

for the issuance of Draft Air Permit # 0039-AOP-R5

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
3110 Walters Road
Little Rock, Arkansas 72216

3. PERMIT WRITER:

Siew Low

4. NAICS:

Description: Ground or Treated Mineral and Earth Manufacturing
Code: 327992

5. SUBMITTALS:

September 15, 2005 and September 29, 2005.

6. REVIEWER'S NOTES:

This permit modification allows the permittee to burn used oil at SN-108, SN-111, SN-112, SN-113, and SN-116. The used oil meets the criteria of 40 CFR 279.11. Also, the emission rates from these sources are revised using the most recent USEPA AP-42 emission factors. Emissions changes would include decrease of PM/PM_{10} by 1.71 tons per year (tpy) and NO_X by 43.36 tpy, increases of SO_2 by 7.25 tpy, VOC by 1.99 tpy, CO by 50.5 tpy, lead by 0.4496 tpy, and increases of (miscellaneous HAPs) chromium, arsenic, cadmium, and PCB by 0.1757 tpy, 0.05 tpy, 0.05 tpy, and 0.02 tpy respectively.

7. COMPLIANCE STATUS:

Last date of inspection is July 27, 2005. There is no outstanding or pending compliance issue.

8. APPLICABLE REGULATIONS:

A. Applicability

Did the facility undergo PSD review in this permit	N
Has this facility undergone PSD review in the past	N
Is this facility categorized as a major source for PSD?	Y
≥ 100 tpy and on the list of 28 (100 tpy)?	N
≥ 250 tpy all other	Y

B. PSD Netting

Was netting performed to avoid PSD review in this permit? N

Source and Pollutant Specific Regulatory Applicability: NA

9. Emission Changes

Plantwide Permitted Emissions (ton/yr)			
Pollutant	**Air Permit 39-AOP-R4**	**Air Permit 39-AOP-R5**	**Change**
PM	955.65	953.94	-1.71
PM10	684.20	682.49	-1.71
NOx	171.61	128.25	-43.36
SO2	56.15	63.40	+7.25
VOC	3.91	5.90	+1.99
CO	88.50	139.05	+50.5
lead	0.0104	0.46	+0.4496
chromium	1.4343	1.61	+0.1757
arsenic	0.2748	0.2798	+0.05
beryllium	0.0017	0.0017	0

Plantwide Permitted Emissions (ton/yr)			
Pollutant	**Air Permit 39-AOP-R4**	**Air Permit 39-AOP-R5**	**Change**
cadmium	0.0916	0.0966	+0.05
manganese	2.4721	2.4721	0
cobalt	0.2496	0.2496	0
PCB	0	0.02	+0.02

10. MODELING:

A. Criteria Pollutants

Particulate modeling for the facility as a whole has not been successfully performed. 3M has installed ambient air monitors throughout model predicted high concentration areas along the facility property line. Reports are submitted quarterly to the enforcement section. No issues are pending concerning excesses in monitor data at this time. The monitors have been in place since Title V permit issuance and will remain a requirement at least until the time of permit renewal.

Pollutant	**Emission Rate (lb/hr)**	**NAAQS Standard (µg/m3)**	**Averaging Time**	**Highest Concentration (µg/m3)**	**% of NAAQS**
NO_X	48.1	100	Annual	48.5	48%
CO	73.9	10,000 40,000	8-hour 1-hour	1890 7393	18% 18%
lead	0.64	1.5	calendar quarter	0.76*	50%*

*lead requires calendar quarter averaging, the more conservative 24-hour average was used here. Therefore, modeling was done without building downwash and background.

Emissions listed in the previous table for both pollutants have decreased in recent past modifications. The slight increases of these pollutants from this modification do not overcome those decreases; therefore, it is not necessary to update modeling results for these pollutants at this time. Past modeling results are displayed in the table.

B. 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/m3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant (Compounds of)	**TLV (mg/m3)**	**PAER (lb/hr) = 0.11*TLV**	**Proposed lb/hr**	**Pass?**
Chromium	0.5	0.0055	0.41	N
Arsenic	0.01	0.0011	0.0095	N
Beryllium	0.01	0.0011	0.0005	Y
Cadmium	0.01	0.0011	0.0094	N
Manganese	0.2	0.022	0.1789	N
Cobalt	0.02	0.0022	0.0570	N
PCB	0.5	0.55	0.0370	Y

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/m3) = 1/100 of Threshold Limit Value**	**Modeled Concentration (µg/m3)**	**Pass?**

Pollutant	(PAIL, µg/m3) = 1/100 of Threshold Limit Value	Modeled Concentration (µg/m3)	Pass?
Manganese	2	1.8	Y
Chromium	5	2.5	Y
Cobalt	0.2	0.09	Y
Arsenic	0.1	0.01	Y
Cadmium	0.1	0.01	Y

Emissions listed in the previous tables for all pollutants have decreased in recent past modifications. The slight increases of these pollutants from this modification do not overcome those decreases; therefore, it is not necessary to update modeling results for these pollutants at this time. Past modeling results are displayed in the tables.

11. 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.

Some permit emission rates are higher than the calculation emission rates. This is because 3-M requested to be permitted at rates listed in previous permits which are based

on older factors.

All HAPs are calculated as a weight fraction of particulate matter. Weight fractions for the "naturally occurring" HAPs were determined from independent testing done on dust collected from various points at the 3M facility. See application information for specific test results. HAP weight fractions from the pigment usage are determined by calculating the pigment HAP fractions resulting in the finished product. This is done by applying the amount of HAPs that are in a specific amount of pigment to the amount of product that the amount of pigment will color. It is assumed that the dust resulting at and down stream from the coloring area will contain the same HAP weight fraction as the colored product. Compliance mechanisms are in place to verify the factors used for pigment HAP emission rates. The calculation attachment includes the HAP weight fractions used to determine naturally occurring HAP emissions. Those weight fractions were determined from independent testing.

Emissions from SN-108, SN-111, SN-112, SN-113, and SN-116 are from EPA AP-42, Section 1.3, Table 1.3-1. HAPs emissions calculations from these sources when combusting used oil are based on the testing.

12. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
NA				

13. RECORD KEEPING REQUIREMENTS

The following are items 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
01,101-108,110-119124,125,128,129, 150-153, 311	baghouse opacity	5%	weekly	Y

SN	Recorded Item	Limit		Frequency	Report
108,111-113,116	diesel fuel/used oil	2.5 MM gal/yr combined		monthly	Y
108,111-113,116	diesel sulfur content used oil sulfur content HAPs constituent	0.3% by weight 0.33% by weight See Specific Condition #33		per delivery	Y
pigment application and subsequent sources	record of product labels, MSDS sheets, analysis of heavy metal content in product, or calculated content based on composition of pigments used by the facility	lead compounds	0.024 lb/ton (.0012% by weight)	per pigment material change	Y
		chromium compounds	6.5 lb/ton (0.325% by weight)		
		manganese compounds	0.3 lb/ton (0.015% by weight)		
		cobalt compounds	4 lb/ton (0.2% by weight)		
115, 154, 155	scrubber liquid flow	70 GPM each		daily	N

14. 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

15. DELETED CONDITIONS:

No conditions were deleted.

16. 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
39-AOP-R0, R1, R2, R3, R4

17. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

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David Triplett, P.E.