

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 1145-AR-6

1. PERMITTING AUTHORITY:

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

2. APPLICANT:

GS Roofing Products Company, Inc.
2701 E. Roosevelt Road
Little Rock, Arkansas 72206

3. PERMIT WRITER:

Siew Low

4. PROCESS DESCRIPTION AND NAICS CODE:

NAICS Description: Asphalt Shingle and Coating Materials Manufacturing
NAICS Code: 324122

5. SUBMITTALS: August 21, 2006 and September 5, 2006.

6. REVIEWER'S NOTES:

GS Roofing (AFIN # 60-00049) at 2701 E. Roosevelt Road, Little Rock, Arkansas 72206, owns and operates an asphalt roofing manufacturing facility. This permit modification authorizes the removal of the Roofing Line Saturator (SN-101) and the removal of the High Energy Air Filter (SN-901). Emissions from Roofing Line Pre-coater (SN-102) and Roofing Line Pre-coater Use Tank (SM-116) that are currently routed to SN-901 are rerouted to the Ceko Filter (SN-902). As the result of SN-901 removal, the testing requirement associated with this source is removed. The plant-wide limit of VOC remains at 95.5 tpy.

7. COMPLIANCE STATUS:

Last date of inspection is April 16, 2004. This inspection report shows that the facility was out of compliance. The following is a summary of the facility's permit violations:

1. The facility failed to maintain emission calculation for SN-106, SN-107, SN-130, SN-140, and SN-178.

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2. Excessive particulate emissions were being emitted from the Modified Compound Mixer (SN-162). Personnel leave the door of the mixer open after taking routine sample.

8. APPLICABLE REGULATIONS:

- a. Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera) (Y/N) N

Has this facility underwent PSD review in the past (Y/N) No Permit # _____

Is this facility categorized as a major source for PSD? (Y/N) No

≥ 100 tpy and on the list of 28 (100 tpy)?(Y/N) _____

≥ 250 tpy all other (Y/N) _____

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 1145-AR-5	Air Permit 1145-AR-6	Change
PM	73.9	73.0	-0.9
PM ₁₀	73.9	73.0	-0.9
SO ₂	1.8	1.8	-
VOC	95.5	95.5	-
CO	14.6	14.8	+0.2
NO _x	11.4	11.4	-
<i>Formaldehyde</i>	1.41	1.37	-0.04
<i>Carbonyl Sulfide</i>	0.73	0.70	-0.03
<i>Polycyclic Organic Matter</i>	0.08	0.07	-0.01
<i>Toluene</i>	0.37	0.40	+0.03
<i>Benzene</i>	0.19	0.19	-
<i>1,1,2,2-Tetrachloroethane</i>	0.02	0.02	-
<i>Ethylidene Dichloride</i>	0.05	0.05	-
<i>Propionaldehyde</i>	0.21	0.21	-
<i>HAPs*</i>	5.0	5.0	-
Ammonia	1.4	1.4	-

HAPs emission limits used at SN-106, SN-107, SN-130, and SN-140 only.

10. MODELING:

Non-Criteria Pollutants

This permit contains a TLV table for non-criteria pollutants. Modeling was used to determine the permitted emission rates for ranges non-criteria pollutants (grouped by TLVs) which would pass the PAER .

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	TLV (mg/m ³)	PAER (lb/hr) = 0.11*TLV	Proposed lb/hr	Pass?
Formaldehyde	0.37	0.0407	1.22	No
Carbonyl Sulfide	TLV Not Established			
Polycyclic Organic Matter*	0.2	0.022	0.07	No
Toluene	188	20.68	0.31	Yes
Benzene	1.59	0.1749	0.16	Yes
1,1,2,2-Tetrachloroethane	6.87	0.7557	0.02	Yes
Ethylidene Dichloride	403.6	44.396	0.04	Yes
Propionaldehyde	47.5	5.225	0.18	Yes
Ammonia	17.4	1.914	0.4	Yes

The TLV for POM is based on the TLV for Phenanthrene.

A HAP table was prepared for SN-106, SN-107, SN-130, and SN-140 to establish Non-Criteria pollutant hourly emission rates in order to stay below 1/100 of the TLV. This table is a format of maximum allowable TLV vs. HAP content (by weight).

2nd Tier Screening (PAIL)

ISCST3 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, $\mu\text{g}/\text{m}^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Pass?
Formaldehyde	15**	10.68	Yes.
Polycyclic Organic Matter	2.0	1.75	Yes

** Surrogate screening value adopted by ADEQ (see Steve Patrick memo of October 19, 1998).

11. CALCULATIONS:

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
SN-104, 105, 133, 134, 135, 136, 137	AP-42 Section 13.2.4 Roofing Line emission factors are from Asphalt Roofing Manufacturer's Association (ARMA), and the modified asphalt VOC emission factor is based on test data from U.S. Intec modified	0.00032 lb PM/PM ₁₀ per ton of material 0.85 lb PM/PM ₁₀ per tons of coating asphalt 4.23 lb PM/PM ₁₀ per ton of saturant asphalt.	-	-	Surfacing PM/PM ₁₀ - All PM/PM ₁₀ is composed of organic compounds. Therefore, the total VOC emissions are the sum of THC (as carbon) and the emitted PM/PM ₁₀ . Saturant is only used on the Roofing Line and only included in the Roofing Lin Cooling Section. CO, VOC, and HAPs emissions are based on ARMA coater and saturator emission factors.

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
	asphalt coater (Asphalt Roofing Industry Fourier Transform Infrared Spectroscopy Modified Bitumen, U.S. Intec, Port Authur, Texas, EPA -454/R-99-027)	<u>Coater</u> CO 7.54e-2 lb/ton of coating asphalt VOC 3.59e-1 lb/ton of non-modified coating asphalt 2.4e-1 lb/ton of modified coating asphalt Toluene 6.18 e-3 lb/ton of coating asphalt Formaldehyde 9.15e-3 lb/ton of coating asphalt			50 % of the Roofing Line Coater and Modified Line Coater emission factors are used. 25% of the Roofing Line Saturator emission factors. The 50% and 25% reduction are based on engineering judgment.

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
		Carbon sulfide 8.08e-3 lb/ton of coating asphalt <u>Saturator</u> CO 5.46e-3 lb/ton of coating asphalt VOC 1.58 lb/ton of coating asphalt Formaldehyde 2.68e-4 lb/ton of coating asphalt			
SN-106, SN-107, SN-130, SN-140, and SN-178	Mass Balance	-	-		Paint, ink, and part washer usage.

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
SN-116, 117, 118, 120, 142, 144, 156, and 159	ARMA	<p>0.105 lb PM/PM₁₀ per ton of material.</p> <p>0.243 lb VOC per ton of material.</p> <p>0.0704 lb CO per ton of material.</p> <p><u>APP</u> VOC 8.10e-2 lb/ton</p> <p>CO 1.19e-2 lb/ton</p> <p>SO₂ 2.1 e-2lb/ton</p> <p>Formaldehyde 1.19e-2</p>	-	-	<p>All PM/PM₁₀ is composed of organic compounds. Therefore, the total VOC emissions are the sum of THC (as carbon) and the emitted PM/PM₁₀.</p> <p>HAP emission factors are based on ARMA Storage Tank emission factors.</p> <p>SN-118 and SN-156 are using SBS.</p> <p>SN-159 is using APP.</p> <p>SN-116, SN-117, and SN-120 are routed to control equipments. A ten percent PM/PM₁₀ control efficiency applied.</p>

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
		lb/ton Carbonyl sulfide 2.85e-4 lb/ton Benzene 1.50e-2 lb/ton Ethylidene Dichloride 3.68e-3 lb/ton Propionaldehyde 1.65e-2 <u>SBS</u> VOC 7.05e-2 lb/ton CO 3.00e-2 lb/ton Formaldehyde			

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
		2.55e-2 lb/ton Carbonyl sulfide 4.05 e-4 lb/ton			
SN-122	AP-42 Section 1.4 and 1.5	Look at AP-42	-	-	Emission rate calculations are based on propane.
SN-126, 146, 147, 150, 179	AP-42 Section 13.2.4	0.00032 lb PM/PM ₁₀ per ton of material	-	-	-
SN-129	AP-42 Section 1.4 and 1.5	Look at AP-42	-	-	Emission rate calculations are based on propane.
SN-142	ARMA		-	-	
SN-175	Tank Program	-	-	-	-
SN-178	Mass Balance	-	-	-	Parts Washers Solvents usage.
SN-902	ARMA	0.85 lb PM/PM ₁₀ per ton of Asphalt	HEAF	90%	10 % of VOC are assumed to be condensable PM/PM ₁₀ but are not controlled by filter
SN-903	Publication from EPA's	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 5400 cubic feet per

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SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
	Clean Air Technology Center (CATC)				minute (cfm).
SN-904	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 1000 cfm.
SN-905	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 900 cfm.
SN-906	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 12,800.
SN-907	NSPS Subpart UU	0.08 lb/ton	Monsanto Coalescing Filter	-	-
SN-908	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 1000 cfm, passive.
SN-909	CATC	0.02 g/ft ³	Baghouse	-	Baghouse exit flow rate: 900 cfm, passive.
SN-910	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 1800cfm.
SN-911	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 1000 cfm.
SN-912	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 4500 cfm.
SN-913	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate:

SN	Emission Factor Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
					1050 cfm.
SN-914	CATC	0.02 gr/ft ³	Baghouse	-	Baghouse exit flow rate: 433 cfm, passive.
SN-182	Mass Balance	-	-	-	-
SN-183	AP-42 Table 1.4-1 and 1.4-2 Natural gas combustion	See AP-42	-	-	Capacity = 3.7 MM Btu/hr With 10% safety factor, 3.7 x 1.1 = 4.1

12. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Justification
SN-131 and SN-132 (Outlet of SN-907)	PM/PM ₁₀	5A, 22, 9	To demonstrate compliance with the permitted emission limits.
SN-145 (Outlet of SN-907)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.
SN-120 (Outlet of SN-902)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.
SN-148 (Outlet of SN-908)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.
SN-149 (Outlet of SN-909)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.

SN(s)	Pollutant	Test Method	Justification
SN-151, SN-152, and SN-153 (Outlet of SN-910)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.
SN-154 (Outlet of SN-911)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.
SN-165, SN-166, SN-167 (Outlet of SN-913)	PM/PM ₁₀	9	To demonstrate compliance with the permitted emission limits. Please see Specific Condition 22 for details.

13. MONITORING OR CEMS

The following are parameters that must be monitored with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
907	Inlet temperature reading	Thermocouple	Continuously	N
902	Pressure Drop Across Unit	Pressure Gauge	Weekly	N

* Indicate frequency of recording required for the parameter (Continuously, hourly, daily, etc.)

** Indicates whether the parameter needs to be included in reports.

14. RECORD KEEPING REQUIREMENTS

The following are items that must be tracked and recorded.

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SN	Recorded Item	Permitted Twelve Month Rolling Total	Frequency*	Report (Y/N)**
Plantwide	Asphalt	89,045 tons	Monthly	No
Plantwide	Saturant	5,608 tons	Monthly	No
Plantwide	Modified Line Roofing Material Production	80,810 tons	Monthly	No
Plantwide	VOC emissions	95.5 ton	Monthly	No
182	Coating VOC and ammonia limits	See Specific Condition 5	Monthly	No
178	Part Washer Solvent VOC limit	See Specific Condition 5	Monthly	No
106, 107, 130, 140	HAPs usage VOC limit	5.0 tons See Specific Condition 5	Monthly	No

* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

** Indicates whether the item needs to be included in reports

15. OPACITY

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
122, 129	20%	19.503	Monthly
104, 105, 106, 107, 118, 126, 130, 133, 134, 135, 136, 137, 140, 142, 146, 147, 150, 156, 159, 175, 178, 179, 182, 183, 903, 904, 905, 906, and 912.	5%	18.501	Monthly
902 - when SN-103 is operating.	20%	19.503	Monthly
- when SN-103 is not operating, and	0%	60.472(c)	

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
SN-120 is operating			
907 - when SN-131 and SN-132 are operating.	20%	19.503	Monthly
- when SN-131 and SN-132 are not operating and SN-145 is operating.	0%	60.472(c)	
144	0%	40 CFR Part 60.472(c)	Monthly
908, 909, 910, 911, and 913.	1%	40 CFR Part 60.472(d)	Monthly

16. DELETED CONDITIONS:

Former SC	Justification for removal
	None

17. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

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

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18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

 David Triplett, P.E.