



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

DEVAL L. PATRICK
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Commissioner

Date Stamped December 14, 2011

Mr. K. Scott Colby
Aggregate Industries North East Region, Inc.
1715 Broadway
Saugus, MA 01906

RE: **WATERTOWN** – Metropolitan Boston/
Northeast Region
310 CMR 7.02 – Air Quality Non-Major
Comprehensive Plan Application
Transmittal No. W200285
Application No. MBR-08-IND-011
FINAL APPROVAL

Dear Mr. Colby:

The Metropolitan Boston/Northeast Regional Office of the Department of Environmental Protection, Bureau of Waste Prevention, (“MassDEP”), has reviewed your Non-Major Comprehensive Plan Application (“Application”) listed above. This Application concerned the modification and operation of an existing hot mix asphalt batching facility and associated equipment located at 48 Coolidge Avenue in Watertown, Massachusetts (“Facility”). The submitted Application bore the seal and signature of David P. Cabral, Massachusetts P.E. No. 45254.

As a result of this review, MassDEP issued a Conditional Approval to you on September 17, 2008, authorizing the modification of the Facility as proposed in your Application.

Aggregate Industries North East Region, Inc. (“AINER”) has conducted emissions testing at the Facility to optimize the performance of the aggregate dryer burner system and to quantify its emissions of nitrogen oxides (NOx) and carbon monoxide (CO). The emissions testing was conducted on June 2 and June 3, 2011. Engineering Technologies Group, Inc. (“ETG”) submitted the test results report to MassDEP on June 15, 2011.

MassDEP has determined that your Application is administratively and technically complete and that the Application, specifications, additional technical information and Standard Operating and Maintenance Procedures for the completed modifications are in conformance with current air pollution control engineering practice, and hereby grants **Final Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Approval carefully, as it stipulates the particular conditions with which the facility owner/operator must comply in order for the facility to be operated in compliance with the Regulations. Failure to comply with this Approval will constitute a violation of the Regulations and can result in the revocation of the Approval.

1. BACKGROUND AND DESCRIPTION OF FACILITY

The hot mix asphalt batching plant is capable of producing 150 tons per hour of hot mix asphalt. The original burner for the plant was rated at 37 million British thermal units (Btu) per hour and was capable of combusting either natural gas or distillate fuel oil. Your May 20, 2008 Application proposed that the existing burner for the aggregate dryer be replaced. The new burner for the aggregate dryer is a Hauck Eco-Star Model ES-50 unit, with a maximum heat input rating of 50 million Btu per hour, capable of combusting only natural gas.

In the hot-mix asphalt production process, stone and sand are transferred from storage piles and placed into the appropriate hoppers of the cold feed unit. The material is metered from the hoppers onto a conveyer belt and is transferred into the rotary dryer. As the hot aggregate leaves the dryer, it drops into a bucket elevator and is transferred to a screen deck enclosed within the batching tower, where it is sized and dropped into individual hot bins. Concurrently, liquid asphalt is pumped from the heated storage tank to an asphalt weigh kettle, where it is weighed to achieve the desired aggregate-to-liquid asphalt ratio in the final mix.

To control the aggregate size distribution in the final batch mix and achieve the desired asphalt consistency, the operator opens various hot bins over a weigh hopper until the desired mix and weight are obtained. All components are then dropped into the pug mill where they are mixed to form the final asphalt product. The asphalt is discharged directly from the pugmill to the asphalt trucks. Exhaust gases from the rotary dryer and the air drawn from the batching tower are vented through a baghouse to control particulate emissions.

The asphalt plant has automated batching controls and all operations are linked to a computerized control room. The plant is capable of processing 200,150 tons of asphalt per month and 780,000 tons of asphalt per rolling 12-month period.

Particulate emissions from the modified plant are controlled with a fabric filter (baghouse) manufactured by ETG.

Your May 20, 2008 Application also proposed the addition of recycled asphalt pavement (RAP) to the asphalt production process. AINER may add RAP to the asphalt production process, replacing up to 10 percent of the stone and sand. RAP does not increase production, but will require increased process ventilation, which in turn will increase the overall process exhaust flow rate. AINER has installed a RAP cold feed bin and conveyor system. A scavenger vent system is installed in the batching tower to draw off steam generated by moist RAP. The exhaust is combined with the other tower and dryer exhaust prior to entering the baghouse, which is

capable of handling the additional airflow from the batching tower associated with the addition of RAP to the product mix.

ETG conducted emissions testing on June 2 and June 3, 2011 to determine the performance of the aggregate dryer burner system and to quantify emissions of NOx and CO. The second objective was to determine if any correlation exists between the use of RAP and the measured NOx and CO emissions.

Four test runs were conducted utilizing an asphalt mix with 10 percent (%) RAP. The maximum NOx and CO emissions were 0.109 pounds per million Btu (lbs/MMBtu) and 0.104 lbs/MMBtu, respectively. Three test runs were conducted utilizing a mix of virgin materials only. The maximum NOx and CO emissions were 0.10 lbs/MMBtu and 0.10 lbs/MMBtu, respectively. No significant difference was noticed in either NOx and CO emissions levels between utilizing an asphalt mix with 10% RAP or a mix of virgin materials only.

2. EMISSION UNITS AND POLLUTION CONTROL DEVICES IDENTIFICATION

The following emission units and pollution control devices (Table 1) are subject to and regulated by this Approval:

Table 1 +			
EMISSION UNIT (EU)	DESCRIPTION OF EMISSION UNIT	EU DESIGN CAPACITY	POLLUTION CONTROL DEVICE (PCD)
EU1	Hot Mix Asphalt Plant Model H&B and Raw Material Handling	50 MMBtu per hour Burner Primary fuel: Natural Gas Maximum firing rate: 50,000 cubic feet per hour	Low NOx Burner (PCD1) Hauck Model ES-50
		150 tons per hour of hot mix asphalt production capacity	Baghouse (PCD2) ETG Model Fabspec 30x240

+ **Table 1 Key:**
 MMBtu = million British thermal units

3. APPLICABLE REQUIREMENTS

A. EMISSION LIMITS AND RESTRICTIONS

The Facility owner/operator shall comply with the emission limits/restrictions as contained in Table 2 below:

Table 2+					
Emission Unit (EU)	Pollutant	Pounds per MMBtu	Pounds per hour	Tons per month	Tons per rolling 12-month period
EU1	NO _x ¹	0.12	6.0	4.0	15.6
	CO ¹	0.12	6.0	4.0	15.6
	SO ₂ ³	0.014	0.7	0.5	1.9
	VOC ²	0.090	4.5	3.0	11.7
	PM ⁴	0.01 gr/dscf	1.64	1.1	4.3

- + **Table 2 Key:**
 NO_x = nitrogen oxides
 CO = carbon monoxide
 SO₂ = sulfur dioxide
 VOC = volatile organic compounds
 PM = Particulate Matter
 gr/dscf = grains per dry standard cubic foot of exhaust gas
 MMBtu = million British thermal units

Notes:

1. NO_x and CO emissions factors are based on MassDEP's evaluation of the emissions testing results submitted to MassDEP on June 15, 2011.
2. VOC emission factors for the Ecostar Model ES-50 burner provided by Hauck.
3. SO₂ emission factor from AP-42 Table 11.1-5 for a natural gas fired dryer, hot screens, and mixer.
4. PM emission factor calculated to be 1.64 pounds per hour after control

B. COMPLIANCE DEMONSTRATION

The Facility owner/operator shall comply with the monitoring/testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3	
EU#	MONITORING/TESTING REQUIREMENTS
EU1	<p>1. AINER shall monitor the Facility's natural gas usage on a daily basis to determine monthly and 12-month rolling period natural gas consumption.</p> <p>2. AINER shall take the following actions at the Facility during all raw material handling including stone, sand, and recycled asphalt pavement (RAP) unloading, transfer, and loading operations at the facility:</p> <p>a) install, operate and maintain pressure differential monitors with high level set points on PCD2, including audible and visual alarms in plant operator area to signal the need for corrective action when an operating pressure differential between the inlet and outlet of baghouse reaches the operating pressure differential as determined from the most recent optimization testing of pressure differential; and,</p> <p>b) ensure prior to and during aggregate unloading, transfer, and loading that PCD2 contains the appropriate number of filter cartridges or bags, and that the filter cleaning mechanisms and fan associated with the dust collector are operating at all times during these transfers.</p> <p>All corrective actions to be undertaken by AINER under alarm conditions shall be explicitly stated in the facility's updated Standard Operating and Maintenance Procedures (SOMP) specified in Special Condition 4.h).</p> <p>3. AINER shall operate and maintain the "fail-safe" electronic interlock system at the Facility, which, at a minimum, shall prevent the transfer of aggregate including RAP from the cold feed hopper to the rotary drum dryer in the event that PCD2 exhibits an operating pressure differential that reaches the operating pressure differential as determined from optimization testing.</p> <p>4. AINER shall perform an optimization program of pressure differential monitors and test the Facility's "fail-safe" electronic interlock system within 30 days of the start of each season and operate in accordance with the maximum operating pressure differentials for PCD2 in inches of water gauge or other conventional units of pressure.</p> <p>5. AINER shall conduct a visolite test or equivalent on PCD2 at least once every three (3) months during plant operation to locate leaks, bag failures, or problems with the operation of the baghouse, such as excessive stack gas opacity.</p> <p>6. AINER shall monitor, in accordance with the updated SOMP:</p> <p>a) total aggregate throughput, and total RAP usage, at the Facility in tons per month and tons per twelve-month rolling period; and,</p> <p>b) at a central location or operator's control room, operating pressure differential for PCD2; and,</p> <p>c) total hours operated per month and twelve-month rolling period of PCD2 during all aggregate unloading, transfer, or loading within the Facility, utilizing meters that measure hours of operation for PCD2.</p> <p>7. Pressure differential monitors shall be calibrated, maintained, and operated by AINER in sufficient manner to ensure continuous and accurate operation at all times during aggregate and RAP unloading, transfer, and loading within the Facility.</p> <p>8. AINER personnel shall inspect and maintain PCD2 in accordance with the recommendations of its manufacturer and the updated SOMP for PCD2, and shall inspect said equipment for proper operation at least on a daily basis or prior to product movement.</p>

Table 3	
EU#	MONITORING/TESTING REQUIREMENTS
EU1	<p>9. AINER shall conduct emissions compliance testing on EU1, PCD1, and PCD2 triennially to demonstrate compliance with NO_x (lb/MMBtu), CO (lb/MMBtu), PM (lb/hr and gr/dscf) limits contained in Table 2, and the opacity limit contained in Special Condition 4.d. The ability of AINER to achieve and maintain particulate emissions and opacity at or below the limits stated in this Approval shall be demonstrated to MassDEP. The next compliance testing program shall be performed on or before July 31, 2014. Compliance testing shall be conducted in accordance with requirements and procedures set forth by appropriate EPA Reference Test Methods, 40 CFR 60 Appendix A, Air Pollution Control Regulations, 310 CMR 7.00, Section 7.13 and this Final Approval. This compliance testing shall be witnessed by MassDEP personnel at a mutually agreeable time and date.</p> <p>10. A written pretest protocol must be submitted to this Office for MassDEP approval at least 30 days prior to each required compliance test. The pre-test protocol shall include, but not be limited to, a description of: the emission compliance testing program proposed, applicable emission limits for which testing and demonstration of compliance is required, sampling point locations, sampling equipment, analytical procedures, proposed test methods, the proposed operating conditions for the required testing and identity of the independent third party testing company.</p> <p>11. A final emission compliance test results report shall be submitted to this Office within 45 days after the completion of each required compliance test. The final emission compliance test report shall include, but not be limited to, a description of: the emission compliance testing program conducted, applicable emission limits for which testing was required and a summary of test results demonstrating compliance and/or noncompliance with applicable limits, sampling point locations, sampling equipment, analytical procedures, actual test methods used, and the actual operating conditions for which the testing was conducted.</p>

Table 4	
RECORD KEEPING REQUIREMENTS	
EU1	<p>1. A maintenance log shall be established and used to record and document maintenance activities on PCD1 and PCD2, including visolite testing performed on PCD2, replacement of leaking filter cartridges or bags in PCD2, etc.</p> <p>2. AINER shall record, in accordance with the updated SOMP:</p> <p>a) total aggregate throughput, and total RAP usage, at the Facility in tons per month and tons per twelve-month rolling period and all exceedances of the maximum throughput limits specified in Special Condition 4. g); and,</p> <p>b) all instances when the operating pressure differential for PCD2 reaches or exceeds the operating pressure differential as determined by the optimization testing of the pressure differential and in accordance with the updated SOMP; and,</p> <p>c) total hours operated per month and twelve-month rolling period of PCD2 during all aggregate unloading, transfer, and loading within the facility; and,</p> <p>d) all malfunctions of EU1, PCD1, and PCD2 including, at a minimum, the date and time the malfunction occurred, a description of the malfunction and the corrective action taken, the date and time corrective actions were initiated, and the date and time corrective actions were completed.</p> <p>3. AINER shall keep records on-site of all calibration and maintenance activities performed for the pressure differential monitors serving PCD2.</p> <p>4. AINER shall keep records on-site of all inspection and maintenance activities for the Facility.</p>

Table 4	
RECORD KEEPING REQUIREMENTS	
	5. AINER shall keep daily records of natural gas usage to determine the monthly and 12-month rolling period natural gas consumption.
EU1	6. AINER shall maintain adequate records on-site to demonstrate compliance with the emission limits as stated in Table 2 of this Approval. At a minimum, the information shall include the calculated facility emissions of NO _x , CO, SO ₂ , VOC, and PM for the month as well as the prior 11 months. The MassDEP approved On-Site Record Keeping Form can be downloaded at (http://www.mass.gov/dep/air/approvals/aqr2010.xls). 7. AINER shall maintain on site and accessible at or near the subject equipment, at all times, a copy of this Approval letter and the updated SOMP for all air-emissions-related equipment at the Facility. 8. AINER shall maintain all records or reports required by this Approval on-site for five (5) years. 9. AINER shall maintain records of any Approval exceedances/deviations that may occur which affect emissions from the Facility.

Table 5	
EU#	REPORTING REQUIREMENTS
EU1	1. Upon MassDEP review and approval of the annual optimization testing results for the pressure differential monitors and “fail-safe” electronic interlock system, AINER shall incorporate the approved operating parameters within the Facility’s updated SOMP (see Special Condition 4.h). 2. AINER shall submit an annual compliance report to this Office containing the actual emission rates, both monthly and running 12-month totals, for each of the air contaminants specified in Table 2 above by January 30 of each year. (See attached MassDEP approved Report Form. An electronic version of this form in Microsoft Excel format can be obtained at (http://www.mass.gov/dep/air/approvals/aqr2010.xls). 3. AINER shall submit, in writing, an Exceedance Report to MassDEP should the Facility exceed any limitation/restriction established in Table 2 and Special Condition 4.g) of this Approval. Said Exceedance Report shall be submitted within seven (7) days of determination of the exceedance of the limitation/restriction. The Exceedance Report shall include identification, duration, and reason for the exceedance, and the remedial action plan to prevent future exceedances.
Facility Wide	4. AINER shall accurately report to MassDEP in accordance with 310 CMR 7.12, all Facility information as required by the Source Registration/Emission Statement Form. AINER shall note any minor changes, which did not require Plan Approval (under 310 CMR 7.02, 7.03, etc.) therein. 5. All records shall be made available to representatives of MassDEP or EPA upon request.

4. SPECIAL CONDITIONS

The Facility is subject to, and shall comply with, the following special conditions:

- a) This Final Approval supersedes Conditional Approval No. MBR-08-IND-011, dated September 17, 2008, issued to the AINER, in its entirety.
- b) AINER shall operate a combined exhaust stack on EU1 listed in Table 6 below that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical

exhaust flow of the emitted gases, including but not limited to rain protection devices “shanty caps” and “egg beaters”. Any emission impacts of exhaust stacks upon sensitive receptors including, but not limited to, people, windows and doors that open, and building fresh air intakes shall be minimized by employing good air pollution control engineering practices.

Table 6				
EU#	Stack Height Above Ground, feet	Stack Exit Diameter, inches	Maximum Exhaust Gas Exit Velocity, feet per second	Outside Stack Shell Material
EU1	42.5	42.63	76	Steel

c) AINER shall take necessary precautions to insure that the Facility complies with MassDEP’s noise guidelines (MassDEP Noise Policy 90-001) and that the Facility does not cause a condition of air pollution (noise) as per 310 CMR 7.10. MassDEP Noise Policy 90-001 limits increases over the existing L₉₀ ambient background level to no more than 10 decibels, A-weighted (dBA). The L₉₀ level represents the sound level exceeded 90 percent of the time and is used by MassDEP for the regulation of noise emissions. Additionally, "pure tone" sounds, defined as any octave band level which exceeds the levels in adjacent octave bands by 3 dBA or more, are also prohibited. AINER shall ensure that the Facility complies with said Regulation and Policy at the property line and the nearest inhabited residence.

d) EU1, PCD1, and PCD2 shall be operated so that visible emissions from the Facility will be less than or equal to five (5) percent opacity, except for a period, or an aggregate period, of time not to exceed two (2) minutes during any one hour when visible emissions may have an opacity of up to ten (10) percent. At no time shall visible emissions exceed ten (10) percent opacity, exclusive of uncombined water vapor.

e) AINER shall keep all Facility roads paved, swept, and/or wetted as applicable and shall keep all product storage piles watered as required, and shall keep sand, RAP, and aggregate feed conveyors enclosed at all times to minimize fugitive particulate emissions. AINER shall employ all reasonable good housekeeping practices to minimize fugitive particulate emissions from the handling of material at the facility.

f) AINER shall have readily accessible on-site as spares, at all times, the minimum number of filter elements, cartridges, or bags for PCD2 as recommended by PCD2’s manufacturer specifications.

g) AINER shall limit: total throughput of hot mix asphalt at the Facility to no more than 200,150 tons per month and 780,000 tons per twelve month rolling period; and usage of RAP to no more than ten (10) percent by weight of any batch produced at the Facility.

h) AINER shall operate the Facility in accordance with the approved SOMP. Future updates to the SOMP shall be submitted to MassDEP within thirty (30) days of said revisions. MassDEP

must approve of significant changes to the SOMP prior to the change becoming effective. The updated SOMP shall supersede prior versions of the SOMP.

i) AINER shall ensure that the subject Facility complies with all applicable requirements contained in 40 CFR 60, Subpart I, "Standards of Performance for Hot Asphalt Facilities."

5. GENERAL CONDITIONS

The Facility is subject to, and shall comply with the following general conditions:

a) Should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then AINER shall immediately take appropriate steps to abate said nuisance condition(s).

b) AINER shall allow MassDEP personnel access to the site, buildings, and all pertinent records at all reasonable times for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

c) This Approval consists of the Application materials and this Approval letter. If conflicting information is found between these two documents, then the requirements of the Approval letter shall take precedence over the documentation in the Application materials.

d) This Approval does not negate the responsibility of the Facility to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this Approval imply compliance with this or any other applicable federal, state, or local regulations now or in the future.

e) This Approval may be suspended, modified, or revoked by MassDEP if, at any time, MassDEP determines that the Facility is violating any condition or part of this Approval.

f) Failure to comply with any of the above stated conditions will constitute a violation of the "Regulations", and can result in the revocation of the Approval granted herein and/or other appropriate enforcement action as provided by law.

g) MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy and Environmental Affairs, for air quality purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act and Regulation 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions" which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report at a later time.

6. APPEAL PROCESS

This Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date you received this Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection (MassDEP)
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Approval, please contact Dhiraj Desai at (978) 694-3282, or in writing at the letterhead.

Sincerely,

Dhiraj Desai
Environmental Engineer

James E. Belsky
Permit Chief
Bureau of Waste Prevention

cc: Board of Health, Administration Building, Watertown, MA 02172
Fire Headquarters, 99 Main Street, Watertown, MA 02172
MassDEP (E-Copy) - Yi Tian, Marc Altobelli
MassDEP/NERO – Marc Altobelli (E-Copy & Hard Copy), Mary Persky, Dhiraj Desai