On July 11, 2008, Warm Mix Asphalt (WMA) arrived for Pennsy Supply. PennDOT had specified WMA for four projects for the 2008 construction season and Pennsy was the successful bidder on one of the projects. This first project for Pennsy consisted of a 1-1/2” overlay on a three mile section of SR 2007 (Deodate Road) in Dauphin County, Pennsylvania. A one mile section of the project was done with conventional HMA as a control. The road was two lanes in each direction and required a total of approximately 4000T of mix. The roadway is a low volume facility designed for less than 0.3 million ESALS.

After considering the options, Pennsy elected to use the Evotherm WMA technology supplied by MeadWestvaco. Jonathan MacIver, Business Development Manager for Evotherm reports that Evotherm has been placed on over 100 projects around the world. Contractors have realized that the introduction of the Evotherm is an easy process with few modifications required to the asphalt plant. The Evotherm additive package is supplied to the plant in totes as shown in Photo 1. A small pump is used to deliver the additive through a metering device and to inject the liquid into the pugmill. The Evotherm additive package was supplied to Pennsy by Hammaker East located in Chambersburg, PA. Otto Beiter, Vice President of Hammaker East commented that the Evotherm was easy to handle. Beiter has been following WMA technology advances and is happy to see the product being used in Pennsylvania.

**MIX DESIGN**

According to John Jeronis, QA Advisor for Pennsy, the mix design proportions used were the same for both the HMA and WMA. The aggregates were produced in the Prescott Quarry. The Evotherm additive and the mix temperature were the only differences for the lab mix design. For the WMA, Jeronis lowered the temperature to 240F for lab mixing and compaction. Fifty gyrations were used for the mix compaction. No differences in lab properties were noted by Pennsy. As an example, the TSR’s for the HMA and WMA were 87.2% and 90.7, respectively.

RAP was not used in the mix design.
for this project. However, MacIver reports that many projects nationwide have used both Evotherm technology and RAP. Dean Mauer, Bituminous Engineer for PennDOT and panel chairman of NCHRP Project 9-43 on WMA mix design, indicated that two of the 2008 WMA projects used RAP. Mauer too expects to see a significant increase in the use of WMA in the next few years to address both energy and environmental issues. Dean sees WMA as a new tool in the toolbox for the asphalt industry.

MIX PRODUCTION

With mix design now in hand, the next step was to produce the mix. Pennsy chose to use their Prescott plant to get the job done. The plant is a 6T Barber Green batch plant with two Astec silos (which were not used for the WMA). The plant operator had just a few minor changes to accommodate the WMA product. A small hole was cut in the pugmill for a spraybar to inject the Evotherm. The spraybar consisted of a twelve foot long, one inch diameter pipe with 3/8” holes drilled every two inches. The Evotherm additive package was discharged into the pugmill at the same time as the asphalt binder.

The plant operator also had to change the set point on the burner to reduce the mix temperature. For conventional HMA, the aggregate temperature is typically 330F; however, the aggregate was only heated to 260F for the WMA. The plant was equipped with a variable speed fan instead of a damper so no adjustment was necessary for air flow. The plant operator’s comment about the plant modifications was “no big deal”.

The temperature of the WMA at the plant was between 230 and 250F. The temperature of the WMA in the field ranged from 205 to approximately 230F. The average mix temperature at the job was about 230F. The 205F temperature occurred during a mechanical breakdown which will be discussed later in this article. The temperature of the HMA was approximately 300F.

Laboratory test results showed that the mix complied with the project specifications for gradation and asphalt content. Jeronis reported that the tests on the HMA and WMA were very similar.

MIX PLACEMENT

The WMA placed and handled just like conventional HMA with the exception that the mix is a bit stiffer. No differences in hauling were noted. A Shuttle Buggy was used to transfer both mixes from the truck to the paver. Placement was done with a Blaw Knox paver. Jeronis reported that the mix came out of the paver looking just like HMA. Other than the temperature of the mix, the paving team couldn’t tell any difference between the WMA and the HMA. See photos 4 and 5.
Two DD90 double drum vibratory rollers were used for compaction. A DD90HF was the breakdown roller in the vibratory mode. The second roller was a DD90 primarily used in the static mode. No finish roller was employed in the compaction train.

When the WMA placement began, an equipment problem occurred with the Shuttle Buggy. A few loads of mix were in the truck about two hours from the time of production to placement. In spite of the temperature of the WMA being only 205F, adequate compaction was achieved. With any paving project, such problems can occur. WMA proved that it could roll with the punches.

Overall the compaction process went smoothly as shown in Photo 6. Density was monitored using a Troxler nuclear gauge. Density for both the HMA and WMA satisfied project specifications. Joints were constructed using a notched wedge system.

When the mix had cooled to 140F, traffic was allowed to use the new surface.
The Louisiana Transportation Research Center was awarded National Cooperative Highway Research Program (NCHRP) Project 9-40 titled Optimization of Tack Coat for HMA Placement to determine the optimum application methods, equipment type and calibration procedures, application rates, and asphalt binder materials for the various uses of tack coats and to recommend revisions to relevant AASHTO methods and practices related to tack coats. The Principal Investigator for this project is Dr. Louay Mohammad, Professor of Civil Engineering at LSU and Director of the Engineering Materials Characterization Research Facility of LTRC. The Co-Principal Investigator is Joe Button, head of the Materials & Pavements Division of the Texas Transportation Institute at Texas A&M University. Asphalt tack coat is a light application of asphalt, usually asphalt diluted with water. It is used to ensure a bond between the surface being paved and the overlying course. A tack coat provides necessary binding between pavement surface layers to make sure that they act as a monolithic system to withstand the traffic and environmental loads. A strong tack coat binding between the layers of a pavement is critical to transfer radial tensile and shear stresses into the entire pavement structure. On the other hand, no bond or insufficient bond decreases pavement bearing capacity and may cause slippage. Insufficient bonding may also cause tensile stresses to be concentrated at the bottom of the wearing course. Such concentrated stress may accelerate fatigue cracking and lead to total pavement failure. Few guidelines are available for proper selection of tack coat material type, application rate, and placement.

To meet the objectives of this study, two mechanical test devices were developed during this project. The first device characterizes the quality of the bond strength of tack coat materials in tension in the field; while the second one measures the interface shear strength of cylindrical specimens.

Fig. 1 shows a new test device, named the Louisiana Tack Coat Quality Tester (LTCQT), which was developed during this project. LTCQT was selected to evaluate the quality of the bond strength of tack coat materials in tension in the field. A user friendly, menu driven software and test procedure was also developed to determine reliability and the repeatability of this device in the field. Three emulsions, CRS-1, SS-1h, and trackless and an asphalt cement, PG 64-22, were selected as tack coat materials that were tested over a wide range of temperatures. The tack coat materials tested with LTCQT exhibited a maximum tensile strength, SMAX, at a distinct testing temperature, TOPT, Fig. 2 thus, the response of tack coat material in tension was characterized using SMAX at TOPT. Furthermore, there was a good correlation between the TOPT and the softening point of the tack coat materials evaluated. Therefore, it is recommended to conduct the LTCQT test at the tack coat softening point, which is a readily available property. Test results indicated that the LTCQT can successfully be used in the field to measure the quality of the bond strength of tack coat and discriminate between the responses of the evaluated tack coats.
Fig. 3 shows the direct shear device that was used to measure the interface shear strength of cylindrical specimens. The device is referred to as the Louisiana Interlayer Shear Strength Tester (LISST). The LISST device was designed such that it will fit into any universal testing machine. It has a nearly frictionless linear bearing to maintain vertical travel and can accommodate sensors that measure vertical and horizontal displacements. The device can also apply a constant normal load up to 689 kPa, and accommodates a specimen with 100 or 150-mm diameters. The interface shear strength of emulsified tack coats under a wide range of testing conditions commonly encountered in field applications was evaluated using the LISST test device. Three types of emulsified tack coats, CRS-1, SS-1h, and Trackless, were considered at three application rates, 0.14, 0.28, and 0.70 l/m². In addition, a “no tack coat” condition was included in the analysis. The effects of construction conditions such as wet (rainfall) and dusty conditions were also evaluated. Laboratory direct shear tests were performed at 25°C. To simulate these test conditions, cores were extracted from a full-scale test site at the Pavement Research Facility of the Louisiana Transportation Research Center. This test site was designed and constructed using conventional tack coat application and paving equipment over an existing HMA pavement surface, Figure 4. Preliminary analysis of the results showed that the trackless tack coat produced the highest shear strength at the three application rates, and SS-1 and CRS-1 resulted in the medium and the lowest strength, respectively. The majority of the cases showed statistically significant difference between clean and dusty conditions. However, no significant difference was found between dry and wet conditions.
HMA PLANT: ENERGY SAVING TIPS
By Bill Garrett, Partner, Meeker Equipment Co., Inc.

PAPA is a great organization and is always developing ideas and information to help us with our HMA businesses. The intent of this series of articles is to help us better control our energy cost, with some “Back to Basics” concepts and information.

FLIGHTING:
Combustion Flights:
With most of today’s burners being total air type combustion systems and firing directly into the dryer/drum, an area of no material veiling must be created so the material cannot fall through the combustion process. When material is allowed to fall into the combustion, unburned fuel, which you bought $\$, will enter the exhaust gasses and add to your drying costs, while also creating possible emissions. This is especially important as ignition is occurring. It would be like trying to start a camp fire and your young child with a bucket of sand and a shovel, throwing sand on your camp fire as you try to light the kindling wood.

Veiling Flights:
The role of the veiling flights are to remove moisture and heat the aggregate to the desired temperatures (hot mix 300-325 deg F, warm mix 240-270 deg F) for mixing and coating with the binder, with the least amount of heated air (energy) leaving the process. Flighting comes in a variety of shapes and sizes all with the purpose of making a fog of aggregate in the air stream for maximum heat absorption and least amount of energy loss.

Fig 4. shows bucket, saw tooth, pharist wheel, straight edged and RAP entry flights, all designed to create the fog of aggregate for maximum energy absorption. If the veil is not completely across the width of the drum/dryer, then energy leaves the drum through the hole created in the veil (Fig 5.) as air & energy always take the path of least resistance.

When the veil is not uniform (Fig 6.), energy leaves the drum/dryer and is observed as uneven temperatures at the exhaust breaching and if one side is much hotter than the other, burning of the exhaust breaching and stack will occur (a sure sign of wasted energy $\$, Fig 7.)

To inspect your flighting and determine problem areas, run just cold aggregate into the drum/dryer at the beginning of the day (without heat) and do an emergency stop. Observe which flights are full, partially full and empty (Fig 4.). Each flight
should hold some material all the way through the drum rotation, assuring a continuous fog of aggregate veiling in front of the burner and not simply a few rows of material falling from the flights allowing heat to leave the process unabsorbed into the materials. The better the veil, the more uniform the breaching temperatures and the less energy needed for your heating and drying of the aggregates (including the RAP).

Know where your heat $$ goes!

NEW NAPA PUBLICATIONS FOCUS ON ENVIRONMENTAL SUSTAINABILITY


*Warm-Mix Asphalt: Contractors’ Experiences* (order number IS-34) captures the experiences of seven contractors from different states who have used warm mix. This publication shares what the contractors learned from the experience, how warm-mix asphalt worked, and how they dealt with the unexpected.

The brochure *Warm-Mix Asphalt: The Future of Asphalt* (order number PS-30) is a highly readable executive summary of warm-mix asphalt technologies that sets out the current state of the practice in an attractive format.

Addressing the LEED (Leadership in Energy and Environmental Design) Green Building Rating System is NAPA’s new brochure *Asphalt Pavements and the LEED Green Building System* (order number PS-32). It shows how asphalt pavements may be used to obtain or contribute to LEED credits.

*Warm-Mix Asphalt* executive summary brochures are available for $2.50 per copy, $45 for 25, and $80 for 50. *Asphalt Pavements and LEED* brochures are priced at $0.50 per copy, or $22.50 for 50. The technical document *Warm-Mix Asphalt: Contractors’ Experiences* is priced at $20 list, $10 to NAPA members. Orders may be placed through NAPA’s online store at www.hotmix.org, through the toll-free order line 888-468-6499, by e-mail to publications@hotmix.org, or by fax to the Publications Department at 301-731-4621.
ENERGY AND RECYCLING 
SYMPOSIUM SCHEDULED FOR 
DECEMBER 2008 IN NEW JERSEY

The popular two-day HMA Symposium on Energy and Recycling will come to the northeast on December 3-4, 2008 at the Sheraton Atlantic City Hotel in Atlantic City, New Jersey. Previous symposiums held in Austin and Indianapolis received high marks from attendees.

This updated event will include asphalt and stone supply outlook, DOT perspectives on the use of RAP, plant processing strategies, contractor and DOT experiences with RAP, mix design, strategies for reducing transportation costs and increasing plant efficiency, and warm-mix asphalt.

For more information, contact Roger Sandberg, NAPA’s Vice President – Membership, via e-mail at rsandberg@hotmix.org. State Asphalt Pavement Associations from Delaware, Maine, Maryland, Massachusetts, New Jersey, New York and Pennsylvania are partnering with NAPA for this event. Attendees are welcome from all areas of the U.S. and Canada.

To reserve a room at the Sheraton, call 888-627-7212. ♦
BEST PRACTICES: ASPHALT TANKS

By Bill Garrett, Partner
Meeker Equipment Co., Inc.

Spill Prevention (SPCC)

1. Overfill prevention mandated—Hi Limit, Tank Level controls to AC pump described, with many acceptable types.

2. Visual inspection for leaks—Dunnage Beams.

3. New Regulation: Asphalt Tanks need containment @ 1.10X capacity of largest tank.

4. Internal vent & overflow to contain spill and direct overflow into an independent container in the containment area, preventing a mess on the tank and in the containment.

5. Sealed top of tank manway to prevent spill and condensing of the VOC on the lid and the VOC migrating under the insulation and collecting at the tank exterior bottom—Potential Fire Hazard.

Heating Control & Efficiency

1. Proper temperature indication and control: thermal fluid coils, electric, & direct fired (never draw AC below heating system—Low Level Limit).

2. Agitator for drawing product over the heating source and providing a better heat transfer thus reducing energy required to heat and maintain product. Also, when crumb rubber or polymers are used, an agitator keeps the products in motion and prevents any potential for separation of the additive from the AC.

3. Insulation thicknesses tank (Chart, more is better), covering sealed & maintaining the seals. Check to see that the insulation is not falling, drooping, bulging over time. All valves insulated, also.

4. Foam Glass at the very bottom of the side walls of the vertical tanks to prevent moisture wicking up the tank & wasting energy.

5. Paint the tanks a dark color absorbing sun light and conserving energy.

Safety (OSHA) & Maintenance Conveniences

1. Ladders & walkways for safety, maintenance and walkways prevent crushing of the insulation, which can cause wasted energy.

2. Sample valve

3. Removable heat exchange systems, especially important with Crumb Rubber and Polymers.

4. Unloading pump plumbed to also be able to remove product from the tank and distribute it back into the truck, without pressurizing the suction side strainer (not designed for pressure).

5. Unloading fill pipe and system return pipe plumbed to below AC levels for less oxidation of AC products.
NUSTAR – THE RISING STAR OF THE ASPHALT INDUSTRY

Since its inception in 2001, NuStar Energy L.P. has steadily grown to become a world leader in the petroleum pipeline and terminal business. But with a solid asphalt terminal business, the addition of an asphalt marketing group last year, and the acquisition of two asphalt refineries earlier this year, NuStar has quickly become the rising star of the asphalt industry.

Today, the company is among the nation’s leading asphalt suppliers and producers, which includes production of its own proprietary line of high-quality asphalt products. The company has an extensive terminal system to store and distribute millions of barrels of asphalt products throughout the country. And NuStar’s dedicated asphalt marketing and trading group supports customers from coast to coast, with additional staff providing professional account management and technical assistance services.

A Refined Vision for Asphalt

Seeing positive fundamentals for the industry going forward, NuStar made the strategic decision to get into the asphalt refining business in 2007. In March of this year, the company completed its acquisition of CITGO Asphalt Refining Company’s asphalt refineries on the U.S. East Coast that have a combined throughput capacity of 104,000 barrels per day (BPD). With the capacity to produce and market over [36] million barrels of asphalt and light products a year, NuStar is now No. 1 in terms of supplying the East Coast market and No. 3 in U.S. asphalt production. Because of the increase in revenues, the acquisition is also expected to earn the company a place on the Fortune 500 list for the first time.

The company’s newly acquired assets include a 74,000-BPD asphalt refinery in Paulsboro, New Jersey; a 30,000-BPD asphalt refinery in Savannah, Georgia, which is the only refinery and asphalt producer on the Southeast seaboard; and three asphalt terminals. Combined, these assets contribute an additional 4.8 million barrels of storage capacity giving NuStar over 86 million barrels of total storage capacity, making it the second largest independent liquids terminal operator in the U.S. NuStar also gained access to 15 terminals with a total storage capacity of approximately 2.1 million barrels that are leased from various third parties.

In connection with the acquisition, NuStar entered into supply agreements with Petróleos de Venezuela S.A. (PDVSA), which includes a commitment by PDVSA to supply NuStar an annual average of 75,000 BPD of crude oil over a minimum seven-year period and a right of first offer to purchase up to nearly 11,000 BPD of paving-grade asphalt and approximately 13,000 BPD of roofing-flux asphalt each year for marketing and sale.

“We’re excited to have completed this acquisition as we now have a solid footing in what we see as a great business going forward,” said Bill Greehey, Chairman of NuStar. “This was a great acquisition for our investors, the employees and the communities where these assets are located. We purchased some very strategic assets for around 50 percent of their replacement value and they’re already making a significant contribution to our earnings.”

NuStar President and CEO Curt Anastasio noted that NuStar plans to invest in the plants and related assets to improve their operations and efficiency.

“NuStar is well-positioned to maximize the efficiency and profitability of these refineries as we have an extensive refining knowledge base,” said Anastasio, referring to the company’s spin off from Valero Energy, the nation’s largest independent refiner, at the end of 2006. “We are also enthusiastic about high-return capital projects we have identified that should increase the operational efficiency and production of both refineries.

“This acquisition complements our existing asphalt marketing and terminals business, gives us exposure to one of the best asphalt markets in the U.S., diversifies our customer base and expands our geographic presence,” said Anastasio.

Quality Products

In addition to its conventional asphalt product line, NuStar has played a key role in developing the latest generation of long-lasting polymer modified asphalt (PMA) products, which add strength and durability to pavement surfaces. NuStar’s proprietary product line includes StellarFlex SP (Superior Performance), which is used on roads and highways and is designed to provide significant resistance to cracking and damage from extreme temperatures. StellarFlex FR (Fuel Resistant) is blend-ed to resist fuel penetration and is an ideal product for airport tarmacs, taxi ways and refueling areas. And, NuStar’s Flex-Gard product is a high-performance thin overlay system used in medium- to long-term maintenance projects, providing longer life than conventional asphalt, and easier installation. NuStar also continues to research newer and better products through its ongoing research and development program.

Supply-Demand Outlook

Anastasio noted that asphalt supply continues to be squeezed for a variety of reasons, primarily due to high crude prices, de-
increased refining production due to reductions in demand for gasoline and diesel, and the many U.S. refinery coker projects on the horizon. Because these coker units process more of the byproducts that are used to produce asphalt, less asphalt is produced, tightening supply. According to industry data, as many as 21 cokers are scheduled to be built in the next few years.

“The U.S. is currently undersupplied by 24,000 BPD, and that number should be around 257,000 BPD by 2012,” said Anastasio, citing Energy Information Administration data, which also shows that asphalt inventories are at an 18-year low.

But at the same time, Anastasio noted that demand is expected to remain strong in the long term.

“Roadwork and infrastructure building will continue to be a necessity in the U.S.,” he said. “Some studies show that about one-third of U.S. roads are in fair to poor condition. You can’t have our infrastructure crumbling. The government obviously recognizes this as Congress recently passed a bill allocating $8 billion for highway and mass-transit projects. We are hopeful, if not confident, that the measure will now pass the Senate.

“And of course, we will do our part to increase supply and meet our customers’ needs and the nation’s demand for quality asphalt by investing in our assets to improve efficiency and production. We are confident that we’re in the right business at the right time.”

For more information about NuStar, visit the company’s website at www.nustarenergy.com. For information on contacting a sales & marketing representative, simply click on “Contact Us.”

**NAPA ANNOUNCES NEW QUALITY COMMENDATION**

*By Margaret B. Cervarich, Vice President – Marketing & Public Affairs National Asphalt Pavement Association (NAPA)*

The National Asphalt Pavement Association has announced a new Diamond Quality Commendation. Modeled after NAPA’s successful Diamond Achievement Commendation, the Diamond Quality Commendation will focus on plant practices resulting in excellent product quality.

“In a tight competitive market, quality is a key to success. We have rising costs and declining or stagnant funding, so our customers demand – and they deserve – a high-quality product. We cannot afford to deliver less than the best quality product we can make,” said Bill Ensor of Maryland Paving, chairman of NAPA’s Quality Improvement Committee (QIC).

Fortunately, the HMA industry has a long commitment to quality. The formation of the Quality Improvement Committee in 1959 as the first standing committee within NAPA, the founding of the National Center for Asphalt Technology (NCAT) in 1986, the development of stone-matrix asphalt as a superior surfacing material in the early 1990s, the initiation of the Perpetual Pavement concept in 2000, and other successful quality initiatives are the underpinnings of the current effort.

The Diamond Achievement Commendation focuses on the need for plants to be good neighbors and to have environmentally sound practices. It encourages and recognizes excellence in everything we do. Many in the industry have, in fact, called it a “blueprint for excellence.” The Diamond Quality Commendation extends the idea of a blueprint for excellence to the pavement material that is produced.

Plans are under way to develop a third Diamond for paving operations and there are numerous paving contractors who do not own plants,” said Ensor.

A task force of NAPA members from the QIC and ES-POC (Environment, Safety, and Plant Operations Committee) groups developed the new commendation with the assistance of NAPA staff.

The areas to be evaluated include Quality Management, RAP and Aggregate Handling, Asphalt Storage, Drying and Mixing, Air Quality, Truck Scales, Silos, and Control Rooms. Certain questions are mandatory and have a required “yes” response in order for the application to be eligible. Each individual area requires a minimum of 80 percent and the total score must be at least 85 percent to get receive the Commendation.

Batch plants and drum plants are handled separately as they require different practices, but the scores needed for passing grades remain the same.

All applications for the Diamond Quality Commendation will be handled online. Supporting documentation such as technician certificates, laboratory accreditation, and third-party reviews will be submitted in electronic format. Because of the online application process, applicants will know about deficiencies immediately.

“The Quality Commendation will be an important component of this industry taking charge of its own destiny,” said Ensor. “Quality is a key component to our strategies. The goal is 500 NAPA Diamond Quality Commendations within the next five years. Meeting this goal will be another way of showing the world the asphalt pavement industry’s commitment to quality.”

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On August 19, 2008 testimony was provided by Associated Pennsylvania Constructors (APC) at the House Transportation Committee Hearing. APC invited PAPA to participate in the testimony which focused on rapid increases of highway construction materials costs, especially liquid asphalt, and the resultant impact on the highway program and company businesses.

APC opened the testimony with a brief discussion of rising costs of construction materials from an ARTBA listing that was provided to the House Transportation Committee. From June 2007 to June 2008 highway construction costs increased by 18.9%. Large contributions to this increase were steel prices (up 96.9%) and liquid asphalt prices (14.2%). These are national averages.

APC’s opening comments were followed by member companies (also PAPA member companies) who presented their viewpoints on the rising material costs. Higher costs have caused a “domino effect” on everyone’s business. Projects being deferred or cancelled have caused early plant closures. Early layoffs are being experienced. More layoffs can be anticipated over the winter months and expectations are for a very slow start in the spring due to low work volume. Both member company presenters urged the legislators to work on a funding solution immediately. The Department of Transportation needs the funding to do their projects correctly both from a reconstruction and maintenance standpoint.

PAPA presented the House Transportation Committee with two handouts. One contained the liquid asphalt prices from November 2005 to August 2008. From these prices, a second handout discussed the change in costs of liquid asphalt per ton of HMA, and the increase in cost per lane mile considering HMA materials only. PAPA discussed the impact of these price changes on project deferrals and cancellations. Also discussed was the potential of plant closures. PAPA briefly discussed the potential of higher RAP mixes being used by PennDOT to help alleviate the asphalt price issue.

Please encourage your state legislators to work toward an early fix for this very serious problem.
SEMINAR – ASPHALT INSTITUTE

By Carlos E. Rosenberger, P.E., Senior Field Engineer
Asphalt Institute

The Asphalt Institute will be conducting a one-day Bailey Course on Monday, November 3, 2008 at the Eden Resort Inn & Conference Center in Lancaster, PA. Lancaster is centrally located for NJ, DE, MD and eastern Pennsylvania. This one-day Bailey seminar was held in 2006 and the seminar was very well received. The cost will be $300 for the day and includes handouts, lunch, breaks and the same instructors used in 2006. To register online please go to the Asphalt Institute website (http://www.asphaltinstitute.org), click on the seminar tab and then click on “An Introduction to the Bailey Method”. The bottom of this page provides a direct link to the website. Thanks for your help in getting the word out.

An Introduction to the Bailey Method
Achieving Volumetrics and HMA Compactability

November 3, 2008
Eden Resort Inn & Conference Center
Lancaster, PA
(717) 560-8400

This one-day course will be of most benefit to those who already have a good grasp of hot-mix asphalt mix design and want to learn how to optimize volumetrics and field compactability. The Bailey Method and its four principles are introduced to understand how aggregate properties affect aggregate packing. The AI Basic Analysis Spreadsheet provided with this course will enable the participant to predict the magnitude and direction of changes in VMA based on changes to a mix design gradation or gradation fluctuations in plant produced mix. As a result, this course information can become a valuable asset to evaluate existing mixtures and in a quality control program.

Instructors: Mark Blow – Senior Regional Engineer Asphalt Institute
Wayne Jones – Senior Regional Engineer Asphalt Institute

6 PDHs (Professional Development Hours) – Registration Fee: $300

Call (859) 288-4964 today.
While all sweeping companies, regardless of size, have similar insurance needs, sweepers have unique needs due to the risks associated with the work. Controlling your insurance and sweeping contracts could prevent others from transferring their risk to you.

Be careful not to accept responsibility for others exposure. Contracting into any job without a strong understanding of how to protect your business could increase your insurance cost, jeopardize your ability to compete, and even put the company you poured your heart into out of business.

Here’s what you need to know...

Certificate of Insurance
A certificate of insurance offers evidence that an insurance policy has been issued, showing the amount and type of insurance provided. It could include special endorsements such as additional insured(s), waiver of subrogation; hold harmless, and/or special notice of cancellation endorsements that may have been added to the policy. Certificates of insurance can not change a policy if misprinted or accidentally misrepresented by the issuer.

Indemnity Agreement
Commonly referred to as a hold harmless agreement, this non-insurance contractual agreement is used to transfer risk from one party to another. This contract is often incorporated into construction contracts, purchase order-agreements, lease agreements, consulting agreements, and most prevalently with our industry, the service job contract.

Waiver of Subrogation
A waiver of subrogation takes away a contractor’s right to sue the owner or the general contractor in certain (or all) circumstances. If a sweeping contractor waives its right to sue, the contractor’s insurer may not have the ability to seek recovery from a negligent party for insurance claims paid to or for the sweeping contractor.

Additional Insured Endorsement
This insurance document is best utilized in contingency with an existing hold harmless agreement. In this way it can protect a party from liability arising out of another party’s negligence. Limits are shared amongst additional insured’s. The additional insured endorsement can cover the additional insured for accidents that arise out of the Named Insured’s (policyholder’s) involvement with the job.

So now what do we do?
First, review each of your sweeping contracts. Negotiate the elimination of items within sweeping contracts that have nothing to do with the work you were contracted to perform.

Next, in order to minimize your exposures, make sure the document only displays actions you have agreed to perform. This will protect you and/or the company sub-contracted should a claim arise out of an incident you were not contracted to perform.

Compare the value of the risk and the value of each job associated with that risk. Remember, we live in a very litigious society where many seek to transfer responsibility to another party. You as the business owner must weigh this uncertainty against the profit margin. If it is not worth the risk, don’t take the contract!

If you sub-contract work make sure the limits of liability of the sub-contractor are no less than what is being required of you. If the sub-contractor’s limits are less than your limits, you will assume the liability for the sub-contracted party as well.

Finally, you pay your insurance broker or agent hard-earned money. Put them to work! Each of the above points should have the input of an individual that understands your business and the challenges you face everyday.
International Warm-Mix Asphalt Conference

November 11-13, 2008
Marriott Nashville Airport
Nashville, Tennessee, USA

The first public demonstration of warm-mix asphalt in the U.S. was held at the World of Asphalt Show and Conference in Nashville in 2004. Since then, numerous field trials and demonstrations have been built throughout the U.S. using a variety of methods to reduce asphalt mix production and placement temperatures. Now the world will return to Nashville for the most comprehensive and compelling conference on warm mix ever presented.

The conference will feature the latest information on warm-mix asphalt technologies, including:
- processes
- mix production and placement
- energy consumption
- mix design
- material properties
- engineering
- environmental performance
- state of the practice
- future directions

The Federal Highway Administration and the National Asphalt Pavement Association are sponsoring an International Conference on Warm-Mix Asphalt to be held in Nashville, Tennessee, November 11-13, 2008.

Speakers: Speakers will include technology providers, researchers, agencies, and contractors who have had first-hand experience. They will be chosen for their ability to present information in a lively, engaging manner.

Who should attend: Engineers, contractors, agency personnel, and researchers

Where to Stay: Marriott Nashville Airport Hotel (615) 889-9300
Hotel Rates: Government employee $107
Non-government $149

Conference registration fee to be determined.

Look for more information at www.warmmixasphalt.com
By Steve Bright, Chairman, PAPA Environmental Committee
Gary R. Brown, P.E., President, RT Environmental Services, Inc.

GENERAL PERMIT FOR OPERATIONS OF HOT-MIX ASPHALT PLANTS WDLF GUIDANCE DOCUMENT MOVING TOWARD FINALIZATION

At Paving the Way press time, senior Pennsylvania DEP Officials indicated that both the Waste Derived Liquid Fuel (WDLF) Guidance Document as well as the General Permit for Operation of Hot Mix Asphalt Plants, were moving toward finalization. The final steps in promulgation involve placing notices in the Pennsylvania Bulletin, receiving public comments, and then, both will be subject to final notice in the Pennsylvania Bulletin. Projections are that both will be finalized, by the end of the year, or early in 2009.

Both documents are the culmination of many years of effort by the Association’s Environmental Committee.

Important benefits of the new documents include:

- Although there has not been a formal review, the number incidents of problems with WDLF appear to have fallen. Historically, problems occurred with the fuel having been mixed with hazardous waste, resulting in halogen levels exceeding limits, or, materials having been mixed with TSCA wastes, exceeding PCB limits. Although the producers of the fuels are responsible from a contractual standpoint for the quality of the materials they deliver to asphalt plants for combustion, air emission permits make those burning the materials responsible as well.

- Regulatory officials have predicted that once procedures became more uniform, that the WDLF industry would improve their procedures, which is already believed to have happened, as DEP recommended interim use of the WDLF Guidance Document approximately two years ago.

- It should be noted that applicants have had the option to either use existing permit conditions, or to use the WDLF Guidance Document provision, but, as permits are renewed, only the WDLF Guidance Document provision can be used.

- Non-uniformity in permit conditions for operating permit air emissions caused the Association’s Environmental Committee to take advantage of DEP’s initiatives to maximize the use of General Permits, several years ago. Similar to the WDLF Guidance Document, uniformity of permit conditions increases compliance rates, and, uniformity allows DEP staff to spend their time on non-uniform air sources, rather than customizing individual Hot Mix Asphalt Plant Permits by fuel type burned, material is used, etc.

- The DEP is expected to allow those holding existing asphalt plant operating permits to “op-in” to the new General Permit conditions, once they formally become available.

- A key benefit of the new General Permit is that the permit will accommodate different fuel types, which, in the current more energy/cost conscious world, improves competition. This step, for those who op-in to operate under the new permit, will avoid the past long delays associated with obtaining permit modifications, before a producer plant can change fuels. At least one nearby state still requires full “re-permitting”, as a “new source”, when fuel types are changed.

- The past focus, when emissions have of concern at a plant, was to complete an expensive stack test, which was hard to arrange, from a logistical standpoint, given the mix of asphalt products which had to be tested during the stack test events. Stack test events typically run in triplicate. The new focus will be on “combustion tuning” conducted at least once annually early in the operating season, and, at intervals, as appropriate, when fuel switching occurs.

Senior DEP Officials have commended the Hot Mix Asphalt Industry for its proactive approach in calling for uniformity in environmental permitting and materials management.
The Association will keep Members informed as these two documents are finalized, and the Association has invited DEP Air Chief Ms. Joyce Epps, to speak at this year’s Annual Conference. The Association will also keep producer plant operators informed in Paving The Way, and, provide an update to Members Environmental Guide when the documents become final.

Should you have any questions on either document, please call Mr. Gary Brown or Mr. Walter Hungarter at RT Environmental Services at 800-725-0593.

**POROUS PAVEMENT GUIDE ON ASSOCIATIONS WEB-PAGE**

The Association’s Porous Pavement Guide is now available on the Association Webpage at www.pahotmix.org. Porous Pavement is receiving much attention following successful tests at the University of New Hampshire, where it was found that freeze/thaw is not of concern due to the dark nature of the pavement, and, considerably less salt has to be used on porous pavement, because the dark color increases snow melt, and the warmer infiltrating water in the snow melt keeps the pavement warmer. The salt use reduction was very significant, which has not been widely publicized to municipalities and civil engineers.

Porous materials are receiving much attention due to national and state stormwater Best Management Practices initiatives. It is now viewed, environmentally, that designing a site with impervious material and adding a “detention basin”, is no longer acceptable. Using materials which allow infiltration, and minimizing the use of curbs, gutters, and storm collection systems, and instead using such attractive features as rain gardens, and grassed swales/waterways provides benefits to the environment including cooler runoff, filtered runoff through swales and rain gardens and less runoff with more infiltration using the porous materials.

As a next step, following availability of the Guide, the Association plans to provide documentation on Pennsylvania case studies, where porous pavement has been successfully installed. Porous pavement is generally regarded as appropriate in areas such as auto parking lots, and other light duty applications, where heavy traffic use and vehicle turning are less likely to damage the pavement.

The new Porous Pavement Guide has been the subject of review by a senior DEP Engineer, and provides considerably more focused information for those involved in design and construction of asphalt pavements, and highlights the latest information available from the important University of New Hampshire studies. The Association is pleased to provide this important new Guide to its Members, and encourages disseminating information that the Guide is available on the Association’s Website to civil engineers, transportation and public works officials, throughout the Commonwealth.◆

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**PAPA NEEDS YOU!!!**

PAPA is actively searching for ideas for upcoming editions of the newsletter. If you would like to write an article or provide PAPA with a company profile, please contact Millie at 717-657-1881 or millie@pahotmix.org. We look forward to hearing new and interesting ideas!
Based on project types, projects will be advertised five (5) to seven (7) weeks prior to the letting date. All lettings will be held on Thursdays at 11:00 a.m. unless otherwise advertised.

### 2008 PENNDOT LETTING SCHEDULE

Following is the tentative Letting Schedule for Construction Year 2008:

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<tr>
<th>Month</th>
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### 2009 PENNDOT LETTING SCHEDULE

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### 2011 PENNDOT LETTING SCHEDULE

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PAPA and RT Environmental Services, Inc. have developed a Porous Asphalt Pavement Guide which is available on PAPA’s website.

Porous asphalt automobile parking areas can provide cost effective, attractive parking lots with a life span of 20 years or more, and at the same time, provide stormwater management systems that promote infiltration and improve water quality.

Porous asphalt pavement is comprised of a permeable asphalt surface placed over a granular material which must be designed to keep the asphalt well-drained. The asphalt surface is made permeable by designing it as an open-graded friction course. The subbase must have capacity to hold, drain, and/or infiltrate the precipitation which passes through the asphalt layer. Which functions are applicable/appropriate at a site are a civil engineering decision.

Many porous pavement sites have been constructed since the late 1970’s with both successes and failures. The most often cited reason for porous pavement failure was silts entering the porous pavement site uncontrolled, essentially clogging the pavement. Some of the benefits created by the successful installations include runoff control, aquifer recharge, reduction of drainage structures needed to comply with stormwater regulations and increased skid resistance.

Other terms applied to porous pavement include porous pavement and permeable pavement.

This document includes guidelines and recommendations for design, construction, and maintenance of porous asphalt pavements in Pennsylvania. Factors considered for determining applicability include rainfall, soil infiltration capability, usage/loading, frequency of use, cost, and stormwater or site civil regulations as applicable to individual sites.

A properly designed porous asphalt pavement under the right conditions will provide a solution to stormwater runoff problems as well as promote groundwater table recharge. Porous pavements are not generally used for roadways or highly trafficked truck areas.
| Material placed in April 2008 | Zone 1 – Districts 3, 4, 5, 6, 8 | $408.00 | $450.00 |
| Zone 2 – Districts 2, 9 | $390.00 | $430.00 |
| Zone 3 – Districts 1, 10, 11, 12 | $372.00 | $410.00 |

| Material placed in May 2008 | Zone 1 – Districts 3, 4, 5, 6, 8 | $442.00 | $487.00 |
| Zone 2 – Districts 2, 9 | $422.50 | $465.50 |
| Zone 3 – Districts 1, 10, 11, 12 | $403.00 | $444.00 |

| Material placed in June 2008 | Zone 1 – Districts 3, 4, 5, 6, 8 | $517.00 | $570.00 |
| Zone 2 – Districts 2, 9 | $499.50 | $550.50 |
| Zone 3 – Districts 1, 10, 11, 12 | $482.00 | $531.00 |

| Material placed in July 2008 | Zone 1 – Districts 3, 4, 5, 6, 8 | $603.00 | $665.00 |
| Zone 2 – Districts 2, 9 | $596.50 | $657.50 |
| Zone 3 – Districts 1, 10, 11, 12 | $590.00 | $650.00 |

| Material placed in August 2008 | Zone 1 – Districts 3, 4, 5, 6, 8 | $834.00 | $919.00 |
| Zone 2 – Districts 2, 9 | $784.50 | $864.50 |
| Zone 3 – Districts 1, 10, 11, 12 | $735.00 | $810.00 |

| Material placed in September 2008 | Zone 1 – Districts 3, 4, 5, 6, 8 | $797.00 | $879.00 |
| Zone 2 – Districts 2, 9 | $758.00 | $836.00 |
| Zone 3 – Districts 1, 10, 11, 12 | $719.00 | $793.00 |

(Be sure to check PAPA’s website - [www.pahotmix.org](http://www.pahotmix.org) - for monthly Price Index)