



# Transportation News

A Resource for Military Transportation Engineers



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## Personnel Changes at the Transportation Systems Center

The Transportation Systems Center (TSC) welcomed John Hawkins to the team. John has been with the Corps of Engineers for nearly 28 years. He started his USACE career at the Missouri Division Laboratory performing concrete and asphaltic mix design studies and testing construction related materials. After ten years he transferred to the Geotechnical Branch of the Omaha District, Foundations and Materials section, performing airfield pavement designs, evaluations, and material investigations and writing specifications and for DOD. At the TSC John is reviewing airfield pavement projects, updating airfield pavement related criteria, and providing support to the field during construction of airfield paving projects. John Hawkins can be reached at 402-995-2409 or by e-mail at [john.c.hawkins@usace.army.mil](mailto:john.c.hawkins@usace.army.mil). Welcome to the TSC John!



*Newest TSC Team Member  
John Hawkins  
Senior Materials Engineer*

After 15 years with the TSC, Kordon Kiel transferred to the Omaha District Geotechnical Branch for a position as a Materials Engineer. In his new position he provides the District with pavement materials support, designs airfield projects, and continues to help out the TSC. Kordon Kiel can now be reached at 402-995-2229 or by e-mail at [kordon.l.kiel@usace.army.mil](mailto:kordon.l.kiel@usace.army.mil). Good luck in your new position Kordy, we miss you at the TSC!

## New ECBs to Help Improve DOD Airfield Pavement Quality

As part of an overall USACE Airfield Pavements Quality Initiative three new Engineering and Construction Bulletins (ECB) were recently issued providing direction to USACE organizations designing and constructing airfields. A goal of the Initiative, started this year by the Transportation Systems Center (TSC) and Engineer Research and Development Center (ERDC), is to identify, develop, maintain and strengthen technical competencies among the USACE workforce. The following ECBs were published in an effort to improve the quality of USACE support for DoD airfield pavement projects. (Continued on page 2)

## New ECBs to Help Improve DOD Airfield Pavement Quality *(Continued)*

**ECB No. 2009-17** [http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb\\_2009\\_17.pdf](http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2009_17.pdf)

Reviews of various design and construction problems with USACE-managed airfield pavement projects reveal that one common cause of design and construction problems on airfield pavement projects is the inadequate review of contractors' proposed mix designs and job mix formulas. According to this ECB, PCC mix design submittals and HMA job-mix-formula submittals for USACE-managed airfield pavement projects will be submitted to the TSC for review prior to approval of these submittals by the construction contracting officer or his representative.

**ECB No. 2009-18** [http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb\\_2009\\_18.pdf](http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2009_18.pdf)

In accordance with this ECB, all airfield project designers for USACE airfield projects are strictly prohibited from editing or rewriting unbracketed text in the referenced UFGS (2.d. and 2.e. above) without specific prior approval by the TSC. Engineering and construction project specification writers (USACE in-house and/or A-Es) are responsible to submit any recommended changes (line through deletions and underline additions) to current UFGSs to the TSC for approval or disapproval prior to making any changes to unbracketed portions of the UFGS. Recommended changes shall include specific recommended changes and supporting documentation indicating the reasons for the recommended change(s). USACE project managers and design managers are responsible to ensure that designs of airfield pavement projects are done in a disciplined manner for both in-house and A-E (design-bid-build or design-build) designs according to USACE policies and in conformance with USACE technical criteria and processes, including this restriction on editing of UFGS.

**ECB No. 2009-22** [http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb\\_2009\\_22.pdf](http://www.wbdg.org/ccb/ARMYCOE/COEECB/ecb_2009_22.pdf)

According to this ECB, newly-initiated projects exceeding \$10 million for the airfield pavement portion are required to obtain additional technical support services from the TSC during the start-up activities of the construction phase of the project. The additional technical support services will include observing and analyzing construction test section results, verification of plant calibration, and observing work quality during early phases of the construction paving portion of the project. This requirement applies to all airfield paving projects exceeding \$10M, including those accomplished via design-bid-build and design-build delivery methods. Project managers should typically plan for this supplemental start-up quality assurance support from the TSC to involve 2 persons for about a two-week period during the initial construction phase of the work.

## Calendar of Events

### **American Concrete Pavement Association (ACPA) Meeting**

Orlando, Florida  
30 Nov – 4 Dec 2009  
[www.acpa.org](http://www.acpa.org)

### **Transportation Research Board (TRB) Meeting**

Washington, D.C.  
10 - 14 January 2010  
[www.trb.org](http://www.trb.org)

### **National Asphalt Pavement Association (NAPA) Meeting**

Maui, Hawaii  
17 – 20 January 2010  
[www.hotmix.org/index.php?option=com\\_content&task=view&id=421&Itemid=933](http://www.hotmix.org/index.php?option=com_content&task=view&id=421&Itemid=933)

### **World of Concrete**

Las Vegas, Nevada  
1 - 5 February 2010  
[www.worldofconcrete.com](http://www.worldofconcrete.com)

### **World of Asphalt 2010**

Cincinnati, Ohio  
15 – 18 February 2010  
[www.worldofasphalt.com](http://www.worldofasphalt.com)

### **Association of Asphalt Paving Technologists Meeting**

Sacramento, California  
7 - 10 March 2010  
<http://www.asphalttechnology.org/annual-meeting.html>

### **Airport Pavement Workshop - Asphalt Pavement Design, Construction, & Maintenance**

Dallas, Texas  
6 - 8 April 2010  
[www.asphaltinstitute.org/ai\\_pages/Seminars/Airport\\_Pavement\\_Workshop\\_Dallas\\_2010.asp](http://www.asphaltinstitute.org/ai_pages/Seminars/Airport_Pavement_Workshop_Dallas_2010.asp)

## UFGS 32 13 11 Update

Revisions to UFGS 32 13 11, “Concrete Pavement for Airfields and Other Heavy Duty Pavement More Than 10,000 Cubic Yards,” have been submitted to Huntsville for incorporation into the November 2009 update via the WBDG website.

The revisions were based on the Tri-Service review meeting held during TRB week and a ASR Summit meeting held on May 13 and hosted by the Transportation Systems Center.

Major revisions were made to the specifications for ASR evaluation and mitigation as a result of the ASR Summit. The previous Tailoring Option for separate Navy or Army/Air Force testing protocols has been replaced with a consensus two-step process:

- 1) Evaluate individual aggregates for expansion  $\leq 0.08\%$  IAW ASTM C 1260.
- 2) For individual aggregates having an expansion  $> 0.08\%$ , find new aggregate sources or mitigate with a Supplementary Cementitious Material (SCM) and/or Lithium Nitrate. Evaluate the individual aggregates, each combined with an SCM, IAW ASTM C 1567. For mixtures using Lithium Nitrate, use CRD-C 662. Aggregates with expansions  $> 0.08\%$  shall be rejected.

Numerous other changes were made throughout the specification. To identify these changes, use the Specintact Editor, select “Find Tags” from the “Edit” Menu, then scroll down the drop-down list to the “Change Notice” tag and select. You can then go from change to change throughout the specification without having to read everything else in between. The revised version of UFGS 32 13 11 should be available on the WBDG website (<http://www.wbdg.org>) during the November update cycle. For more information contact Richard L. Donovan at [r.l.donovan@cox.net](mailto:r.l.donovan@cox.net).

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## Critical Runway Assessment and Repair Small Crater Repair Demonstration



The Critical Runway Assessment and Repair Joint Capabilities Technology Demonstration (CRATR JCTD) focuses on developing new small crater repair tactics, techniques, and procedures using emerging technologies that will support both fighter and wide body aircraft on the same runway. Personnel from the US Army ERDC, the Air Force Research Laboratory, and AFCESA all participated in the final phase of this demonstration program during August-September 2009. During this time, the 820<sup>th</sup> RED HORSE Squadron conducted over 60 crater repairs using new improved repair techniques developed at the various labs. Live flight verification tests were also conducted using C-17 and F-15 aircraft. For more information contact Lucy Priddy, USACE ERDC, [lucy.p.priddy@usace.army.mil](mailto:lucy.p.priddy@usace.army.mil).

## Warm Mix Asphalt Receives a Lot of Attention

by Ray Brown, USACE-ERDC

In recent years the Hot Mix Asphalt (HMA) Industry has taken a number of steps to lower emissions in the production and placement of asphalt mixtures. One technology that has shown lots of promise in making the use of asphalt mixtures more environmentally friendly is the use of warm mix asphalt (WMA). There are a number of processes used to produce warm mix asphalt and it seems that new processes are continually being developed. All of the processes result in a procedure that allows asphalt mixture to be produced at temperatures significantly lower than the temperatures that are presently being used for HMA. When WMA is used, the temperature is dropped approximately 50 degrees F or more depending on the specific technology used.

Some of the processes used to produce WMA include the use of foaming, adding a wax like substance, adding a special filler, modifying the chemistry of the asphalt, and others. Generally each of these methods has been shown to allow the mixture temperature to be dropped significantly and mixture performance has been good. In fact, with some of these processes it is likely that the cost for producing the asphalt mixture can be reduced due to the fuel savings at these lower temperatures. If costs are lower, performance is good, and emissions are reduced, widespread use of warm mix asphalt is certain to happen. In fact, in the future it is very likely that most of the asphalt mixtures that are produced will be some form of warm mix asphalt.

This technology looks so promising that one state now allows the contractor for any hot mix asphalt contract in the state to convert to one of the warm mix technologies as long as the price does not increase. The state is finding that on more and more projects the contractor is electing to use warm mix asphalt due to the advantages. There is no doubt that other states will soon follow and it won't be very long before some states begin to require the use of WMA. So when states begin to require the use of WMA, those involved with airfield paving within those particular states will also have to use this technology.

The Air Force is aware of the importance of developing guidance for using warm mix asphalt. As a result they have funded the USACE Engineer Research and Development Center to develop criteria for using WMA. Fortunately, most of what is now done to specify and control the quality of asphalt work will directly apply to WMA. Hence, the adoption of WMA for constructing airfield pavements should not present a problem that can not be easily handled with the present procedures being used for HMA.

For more information on WMA contact Ray Brown, USACE ERDC, at [ray.brown@usace.army.mil](mailto:ray.brown@usace.army.mil).

## PCASE Update

After years of incorporating user comments and new criteria, PCASE2.09 is nearing its final completion. It currently is going through the final review process and plans are to release the software in November 2009. Meanwhile, PCASE2.09 is also going through the recertification process, and according to HQ USACE, PCASE2.09 certification is valid since the paperwork has been submitted. This means for USACE users you will be able to download and install PCASE2.09 when it is available. Notification of the release of PCASE2.09 will be sent to all users that have registered on the PCASE website at [www.pcase.com](http://www.pcase.com) or <https://transportation.wes.army.mil/pcase>. If you haven't registered on the PCASE website since September 2008 (new site) you will need to do so to be notified of new releases, upcoming workshops, and other pavement-related news. Note: currently our website is also on the list for recertification so if you get a message "There is a problem with this website's security certificate" click on the option for "Continue to this site (not recommended)"; it is a safe and secure site. For more information on PCASE contact Mary Adolf, USACE TSC, at [mary.j.adolf@usace.army.mil](mailto:mary.j.adolf@usace.army.mil).

## **NAVFAC Evaluation of GSB-88 Sealer/Binder Pavement Preservation for Corrosion Control and Sustainment of Military Pavement Infrastructure**

by Greg Cline, NAVFAC ESC

Greater than 75% of asphalt pavement distresses on DOD airfields are due to environmental causes (weathering); the leading cause of increased maintenance costs and foreign object debris (FOD). With aggressive early asphalt preventative maintenance these costs could be significantly reduced and pavement readiness increased. The DOD has been given the responsibility to comply with GAO-03-753 report on corrosion control and seek out successful cost saving technology that will preserve DOD assets and increase the readiness of critical facilities.

NAVFAC is currently evaluating asphalt preventive maintenance materials. One material which is showing better than expected results is GSB-88 Sealer/Binder. GSB-88 has been applied to approximately two hundred FAA commercial airfields. Review of the MicroPAVER data from these airfields indicates application of GSB-88 significantly reduced the rate of pavement deterioration. In some cases, the useable life of the treated airfield pavement doubled. The greatest benefits of GSB-88 applications are to newer pavements. Pavements with a Pavement Condition Index (PCI) greater than 60 showed significantly greater life extension than pavements with a PCI of less than 60; however, GSB-88 can be very beneficial in holding a poor pavement together long enough to engineer and fund a more permanent solution. In addition to minimizing FOD on airfield pavements GSB-88 applications may also benefit outlying or remote airfields in preserving older pavements from further binder deterioration. Presently, surface treatments are not allowed on DOD Runway/Taxiway pavements because of issues such as low friction values; however, current evaluations indicate the friction values for GSB-88 applications to be more than acceptable; above acceptable minimums within 24 to 48 hours.

GSB-88 has a relatively low cost of approximately \$1 sq/yd (applied) which could result in a savings of hundreds of millions of dollars annually for DOD. NAVFAC is currently conducting site visits and evaluations on DOD airfield pavements where GSB-88 was applied for validating and approving the use of this product on military pavements. Preliminary data indicates similar benefits and results as experienced by the FAA. This study will be completed in FY10 and if GSB-88 continues to prove to be a valid product for military use, it will be included in the appropriate guide specifications for airfield pavement maintenance; a Draft of which is anticipated to be completed by December 2009.

For more information contact Greg Cline, Project Manager, NAVFAC Engineering Service Center, at [gregory.d.cline@navy.mil](mailto:gregory.d.cline@navy.mil).

If you have any questions on transportation systems, or recommendations for future News articles, let us hear from you.

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