VTRC File No: _____

Virginia Transportation Research Council
Contract/Grant Progress Report

Project No: TPF5 (045) **Starting Date: 3/1/2003** **Target Completion Date: 12/31/06**
Project Title: Development of Performance Guidelines for the Selection of Bituminous Hot-Poured Crack Sealants
Performing Agency: Virginia Tech
Principal Investigator(s): Imad L. Al-Qadi
Date of This Report: 6/1/03 **Next Report Due Date: _____**

Project Description

The National Research Council of Canada, Virginia Tech, and the Virginia Transportation Research Council are working to achieve a means of selecting durable crack sealant materials for use on pavements. The project will establish performance guidelines for the selection of crack sealants. These guidelines will ensure that sealants with superior performance and greater durability can be selected for crack sealing. It is expected that the guideline will be in the spirit of the Performance Grade (PG) system for bituminous binders. The project is structured to provide: (1) A short-term aging procedure that simulates sealant aging during installation; (2) long-term aging procedure that simulates weathering during service; (3) A method to assess the low temperature performance of sealants; and (4) A sealant adhesion test.

Research Activities Pursued This Period (Including Tasks):

Literature review on low temperature cracking of binders and on crack sealants (161 references were found).
Contact manufacturers of BBR and DTT to discuss feasibility of modifying their equipment for testing crack sealants.
Organize 2nd Annual Meeting of the Consortium.
Design new molds for BBR and DTT to minimize interference with sample during preparation.
Experiment with different release agents for sealant materials.
Trial tests with BBR at -40°C with a very soft crack sealant material.

Problems Encountered:

Difficulties were found when working with BBR and DTT Manufacturers to build versatile systems that allow testing different specimen sizes.

Activities Planned for Next Period:

Build and test designed molds
Continue working with manufacturers to fine-tune a versatile DTT machine that allows the testing of different sample shapes.
Sampling of the four available sealants (2 from US and 2 from Canada) in specially designed molds to keep them in the freezer before they could be tested using BBR or DTT.
Get different sealants from different US and Canadian Manufacturers.
Test sealants with BBR (using existing beam size) at low temperatures.
Analyze results and use of virtual work theory (to minimize shear effects on measured deflection), to decide on beam size to be used for crack sealants.

Budget Status:

Current FY Project Budget:	$227,279		Project Budget Lifetime: $820,000.00
Current FY Expenditures:	$8,405.87	as of 5-31-2003	Expenditures LTD: $8,405.87
Percent Expended this FY:	3.7 %%	(Date)	Percent Expended LTD: 1.025%%

Timetable: Project is (check):

On Schedule	☒
Behind Schedule *	☐ (explain above)
Ahead of Schedule	☐

Preparer's Signature: _____ Date: _____