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: University of Illinois
Principal Investigator(s): Imad L. Al-Qadi
Date of This Report: 05/31/06 **Next Report Due Date: 8/31/06**

Project Description
The project will establish performance guidelines for the proper selection of hot-poured crack sealants. The guidelines will be in the spirit of the Performance Grade (PG) system for bituminous binders with some modifications to the equipment, data analysis procedure, and testing methods.

Research Activities Pursued This Period:

- The research team has completed the statistical variation subtask of the viscosity test. This includes variation between six laboratories. The final analysis will be completed this month and the viscosity test standard will be completed.
- Statistical variation of BBR test between operators as well as between equipment is completed. The aged sealant will be tested using Cannon instrument.
- Rock samples, having a wide range of chemical composition, were collected from IL, TX, OH, and PA. These samples will be used in the adhesive test development. Three aggregate samples have been sent to Texas A&M University to measure their surface tension.
- The aging procedure has been finalized and a new vacuum oven is currently being used to age all designated sealants.
- Significant progress was made in the blister test. The test is currently being fine-tuned.

Problems Encountered:

- The DTT device is under maintenance. The PC control computer exhibits repetitive difficulties in operation.
- Extensive testing of the vacuum oven was conducted and proved that the original oven suggested by NRC was inappropriate for the aging application. The oven used to develop the aging test is 20 years old and it appears that building a vacuum oven with similar characteristics is not possible. Detailed testing was conducted to identify a new vacuum oven and to verify that it worked. Details of that will be provided in the final report.

Activities Planned for Next Period:

- Investigate the repeatability of the BBR test.
- Evaluate the fracture toughness test and linearity response using the new manufactured molds.
- Continue the work on validation and verification of the finite element blister model.
- Determine the repeatability of the semi-cylindrical adhesion fixture. If the test is repeatable, testing of sealant-aggregate combination will start.
- Continue fine-tuning the blister test.
- Submit the standard for Viscosity test and the BBR test.

Budget Status:

Current FY Project Budget: $291,434		Project Budget Lifetime: *820,000
Current FY Expenditures: $130,482	as of	Expenditures LTD: $513,142
Percent Expended this FY: 45%	(Date)	Percent Expended LTD: 62.58%

Timetable: Project is (check):

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

Preparer's Signature: _____ Date: _____