Guidance for Evaluation of MSCR Recovery to Replace PG Plus Tests
Southeast User-Producer Group

In both the February 7 and April 26, 2012 SEAUPG MSCR Task Force WebEx meetings, participating agencies affirmed the proposed goal of evaluating the use of MSCR Recovery to replace existing PG Plus tests. This is a companion document to the "Use of MSCR Recovery to Replace PG Plus Tests in the Southeast Asphalt User Producer Group" that was provided to you at the last WebEx meeting.

The purpose of this document and supplemental spreadsheet is twofold:
1) To provide a method for evaluating MSCR Recovery vs. the PG Plus test currently being used in each area, in a manner consistent with other SEAUPG states. This regional evaluation should provide an even greater comfort level with the results and provide a solid foundation for proposed changes in specifications an agency might choose regarding MSCR Recovery.
2) To provide agencies and other participating groups, such as suppliers in the SEAUPG region, with a spreadsheet in which the data can be reported in a standard format for analysis by the Asphalt Institute. The resulting report would be sent to each participating group for evaluation and reference.

The evaluation study will be conducted prior to the SEAUPG annual meeting on November 12-15 2012, where the results of the evaluation will be presented at the Binder Task Group meeting. Therefore, the deadline for data to be submitted is October 31st. The accompanying spreadsheet is designed to allow the agency to enter and store data as the testing is performed and then to submit all of the accumulated data at one time. Data should be submitted to Mike Anderson at manderson@asphaltinstitute.org. Any questions or issues should also be directed to Mike at (859) 288-4984 or at his e-mail address.

This evaluation will be most effective with as much data as possible on a wide range of binder suppliers, Elastic Recovery criteria and grades. Agencies should run the MSCR test on, at minimum, their most commonly-used modified binders for evaluation. However, data on modified binders that have minimum ER % requirements that are 60% or lower would be especially valuable since most research has been done on modified binders with higher minimum ER criteria of 70-75%.

The Asphalt Institute has suggested that every agency in the southeast determine the MSCR Recovery using the following parameters:
- Determine on RTFO-aged binders
- Run the MSCR test at 64°C
- Use the 3.2 kPa shear stress data

The following should be considered when evaluating MSCR Recovery for possible implementation at your agency:

- The MSCR Recovery test is intended as a *replacement* for any current PG Plus test now in use to evaluate the presence of polymers in modified binders, not as an *additional* test.
- There are many variations of the Elastic Recovery test used in the SEAUPG region, and many different specified minimum ER values.
- The Asphalt Institute has suggested a starting point of your current minimum % Elastic Recovery minus 15% for the minimum MSCR Recovery.
- The MSCR Recovery test may not track exactly with the Elastic Recovery test. Be thoughtful regarding whether or not it is appropriate to use the Elastic Recovery test as the "gold standard" for comparison.
- This evaluation period is also a good opportunity to compare results obtained by different DSRs in your lab and even test results obtained by different technicians. If biases are discovered, they can be addressed. If no biases are determined, the data can serve to document the precision of your lab.
- AASHTO TP 70 simply states that if the percent recovery plots above the line (defined by the equation $y = 29.371(x)^{-0.2633}$, where x = average J_{nr} at 3.2 kPa and y = percent recovery), the binder is modified with an acceptable elastomeric polymer. You may want to consider a "pass/fail" system like the one specified in AASHTO TP 70, or you may consider setting a minimum acceptable percent recovery.
- Very low J_{nr} values (less than about 0.5) will result in failing comparisons because of the asymptotic nature of the equation as it approaches zero. Also, the relationship is not intended for J_{nr} values over 2.0 kPa^{-1}.
- When evaluating the data graphically, the minimum MSCR recovery requirement should be established in a manner where the user risk is approximately equal to the supplier risk.