

MINUTES
of the
TWENTY NINTH PACIFIC COAST CONFERENCE
ON ASPHALT SPECIFICATIONS

i. **NOTICE OF CONFERENCE**

Pursuant to notification and invitation by Professor C. L. Monismith, Moderator for the Conference, to leading governmental asphalt user agencies, asphalt and aggregate suppliers and asphalt mixture producers and others interested in the various forms of asphalt and asphalt mixtures marketing in the area of the states of Alaska, Arizona, California, Hawaii, Nevada, Oregon and Washington, the Twenty Eighth Pacific Coast Conference on Asphalt Specifications was held at the University of California, Berkeley Research Field Station in Richmond, California on Tuesday and Wednesday, May 13-14, 1997.

The Conference was called to order at 9:08 a.m., Tuesday, May 13, 1997, by the Moderator, Professor C. L. Monismith.

ii. **ATTENDANCE**

The following were in attendance:

Asphalt User Agencies

- | | | | |
|----|---|----|----------|
| 1. | Arizona Department of Transportation | G. | Way |
| 2. | California Dept. of Transportation (CALTRANS) | R. | Bushey |
| | | B. | Doty |
| | | R. | Reese |
| 3. | Federal Highway Administration | J. | Massucco |
| | | B. | Neitzke |

4.	City of Los Angeles	T.	Thomas
5.	County of Los Angeles	R.	Villacorta
6.	Nevada Dept. of Transportation	F.	Lancaster
		C.	Cook
		D.	Weitzel
7.	Oregon Department of Transportation	G.	Thompson
8.	San Diego County Dept. of Public Works	J.	Goldhammer
9.	Washington State Dept. of Transportation	R.	Briggs
		J.	Walter

Asphalt Producers & Materials Suppliers

1.	Albina Asphalt Co.	C. A.	Clayton
2.	Chevron U.S.A.	L.	Santucci
3.	Chevron Products	S.	Nisula
4.	Conoco	T.	Claret
5.	Enichem Elastomers	M.	Bullock
		T.	Nichols
6.	Golden Bear	B.	Staugaard
7.	Huntway Refining Company	D.	Goss
8.	Idaho Asphalt Supply	M.	LaVoie
		D.	Salomon
9.	Koch Materials Company	M.	Bouldin
		O.	Hill
10.	McCall Oil & Chemical	P.	Turpen
11.	Navajo Western Asphalt Co.	J.	Benedict
		A.	Ford
12.	Oxnard Refinery	J.	Chase
13.	Paramount Petroleum Corp.	C.	Boudreaux
		S.	Burhans
14.	Petro-Chem Marketing, Inc.	A. B.	Samuels
15.	San Joaquin Refining Co.	D.	Powell
16.	Shell Chemical Co.	J.	Kendrick
17.	Shell Oil Co.	R.	Holmgreen
18.	Sim J. Harris	T.	Stone
19.	Telfer Sheldon Oil Co.	H.	Ho
20.	U. S. Oil & Refining Company	S. M.	TecleMariam
21.	Vinzoyl Technical Services	M.	Doyle

Visitors & Guests

- | | | | |
|----|-----------------------------|----|-----------|
| 1. | Asphalt Consultant | R. | Hodgson |
| 2. | Asphalt Institute | B. | Campbell |
| | | R. | Humer |
| 3. | BASF | B. | Huff |
| 4. | B. A. Vallerger, Inc. | B. | Vallerger |
| 5. | Oregon State University | R. | Leahy |
| 6. | University of Nevada - Reno | J. | Epps |
| 7. | Vicelja Engineering | J. | Vicelja |

Moderator, Secretary & Staff

- | | | | |
|----|---|-------|-----------|
| 1. | University of California, Berkeley, Moderator | C. L. | Monismith |
| 2. | J. F. Pearring, Inc., Secretary | J. | Pearring |
| | | L. | Economy |

iii. POLICY ON ANTITRUST COMPLIANCE

It is customary that all Producer Representatives to the Conference adhere to Antitrust Compliance requirements. Mr. Jack Pearring, Secretary, reminded all Producer and Supplier Representatives present that the Conference has adopted a Statement of Compliance with Antitrust Principles, which is on file in the office of the Conference Secretary.

AGENDA

TWENTY NINTH PACIFIC COAST CONFERENCE

ON ASPHALT SPECIFICATIONS

University of California, Berkeley
Research Field Station

Richmond, California

May 13-14, 1997

MODERATOR: Professor C. L. Monismith, University of California.

REGISTRATION: Tuesday, May 13, 1997, 8:00 a.m.,

CONFERENCE CONVENED: Tuesday, May 13, 1997, 9:08 a.m.

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|------|--------------------------------|-----------------|
| i. | Notice of Conference | C. L. Monismith |
| ii. | Attendance | C. L. Monismith |
| iii. | Policy on Antitrust Compliance | J. F. Pearring |

Discussion Items

Speaker

- | | | |
|-----|---|-------------------|
| I. | Introductory Remarks & Approval Minutes | C. L. Monismith |
| II. | Paving Asphalt Committee Report and Recommendations | J. Massucco |
| A. | Task Groups | |
| | 1. Certifying Suppliers | G. Thompson |
| | 2. Round Robin | S. M. TecleMariam |
| | 3. Asphalt Rubber Binder | J. Goldhammer |

	4	Data Base	R. B. Leahy C. Cook
	B.	PG Specification Status - ETG report	R. Reese
III.		Asphalt Mixture Committee Report and Recommendations	R. B. Leahy
	A.	Fatigue Task Group	R. Reese C. L. Monismith
IV.		Progress of AASHTO Activities	H. Tahir
V.		Standing Committee Report and Recommendations	R. P. Humer
VI.		Conference Action on Asphalt Paving Committee Recommendations	C. L. Monismith
VII.		Conference Action on Asphalt Mixture Committee Recommendations	C. L. Monismith
VIII.		Emulsion Committee Report and Recommendations	S. M. TecleMariam
IX.		Report from Rocky Mountain User Producer Group	T. Claret
X.		Progress of ASTM Activities	M. P. Doyle
XI.		Superpave Regional Centers	
	A.	UN Reno	J. Epps
	B.	UC Berkeley	C. L. Monismith
XII.		Recommendations for Future Activities	J. P. Walter R. J. Holmgreen
XIII.		Future Conferences	C. L. Monismith
XIV.		Resolutions	J. P. Walter R. J. Holmgreen

XV. Appreciation to Moderator, et al

Conf. Delegates

XVI. Adjournment

I. INTRODUCTORY REMARKS AND APPROVAL OF MINUTES

Professor Carl L. Monismith opened the Conference by welcoming the representatives of the user agencies, asphalt producers, materials suppliers, visitors and guests to the Richmond Field Station of the University of California, Berkeley. Each attendee was requested to submit his/her name and company affiliation to a sign-up sheet so that the Minutes being recorded at this Conference could be properly documented and distributed. In addition, it was asked that each attendee review the current roster and make any necessary changes.

The following action was then taken relative to the Minutes of the Twenty Eighth Conference held in Berkeley, California, May 21-22, 1996:

MS&C that the Minutes of the Twenty Eighth Pacific Coast Conference on Asphalt Specifications be approved as prepared and distributed.

II. PAVING ASPHALT COMMITTEE REPORT AND RECOMMENDATIONS

The Paving Asphalt Committee was charged at the Twenty Seventh Conference to:

- 1) Continue validation of PG Binder Specification using all available data even if not completed by 1997.
- 2) Prepare PG Validation Report for the 1997 Conference with recommendations on adoption.
- 3) Continue evaluation of and development of a Performance Based Specification for CRM Binders.
- 4) Continue use of PG graded binders with additional requirements.

In response to these Charges Mr. Joe Massucco, Chair of the Paving Asphalt Committee, reported that the Committee has met four (4) times in association with the Asphalt Mixture Committee since the last Conference; August 19-20, 1996; December 16-17, 1996; February 10-11, 1997; and April 21-22, 1997. Scheduling of meetings in coordination with the Asphalt Mix Committee allows for a better understanding of binder and mixture selection and design. This involves extensive analyzing of laboratory and field performance data which is the driving force behind the accomplishment of the Committee's Charge.

A listing of the Conference SHRP equipment status is included in **APPENDIX I.** The main focus of the Committee continues to be validation of fatigue criteria in the PG specification.

Mr. Massucco questioned the Conference as to it's intent to validate. Most other User Producer groups have implementation as their objective. Is that a possibility in our Conference given the skepticism of some of the members? The following is a listing of the planned adoption dates for the Conference:

Alaska:	No Target Date, Project to Project Basis
Arizona:	Adopted and Implemented
California:	No Target Date
Nevada:	Tentatively -- January, 1998
Oregon:	January, 1999
Washington:	June, 1998

All members did agree that if the PG grading system was validated, then adoption was the next step.

It was reported that the Committee was receiving good support through the various contributions and efforts of each of its members. Mr. Massucco then showed appreciation to his Vice-Chair, Mr. Bob Staugaard for his continued support. A synopsis of Mr. Massucco's remarks is located in **APPENDIX II.**

- A. Certain task groups have been formed by the Paving Asphalt Committee to study various relevant issues. These Task Groups individually gave an update on their progress:

1. Certified Supplier

Mr. Gary Thompson, handed out copies of the proposed version of the "Standard Practice for Certifying Suppliers of Performance Graded Binders" which can be found in APPENDIX III. He highlighted the established requirements for becoming a certified supplier, incorporating the certification process, sampling and decertification. Many questions and concerns arose regarding; definition of certifiable product, lot size for certification, proof of burden -- agency vs. supplier. These questions and concerns will be considered by the Committee as it revises the document.

2. Round Robin

Mrs. Shauna-May TecleMariam reported that there were seven (7) samples and an average of ten (10) labs participating. Each sample was a different grade of asphalt from a different supplier over the course of a two year period. APPENDIX IV includes the results of the various tests performed. Many questions arose concerning the reason for the variations experienced in the calibration of machines and accuracy. The Bending Beam Rheometer (BBR), gave good results, but more work needs to be done. The main concern is suppliers varying results based on what is needed in their particular state.

3. Asphalt Rubber Binder

At the previous Conference, the Paving Asphalt Committee was directed to continue evaluation and development of a performance based specification for CRM binder. Mr. Joe Goldhammer distributed a summary of activities for the 1996-1997 period, of the Crumb Rubber Modified Binder Task Group, APPENDIX V.

Round-robin testing of a crumb rubber binder that was started last year has been completed. The round-robin consisted of DSR testing of three (3) samples obtained by Nevada DOT from a project on US 95. Different results were obtained between the cup and plate configuration and plate to plate configuration.

Information from Arizona DOT and San Diego County on testing performed by NIOSH are similar to prior projects, with low level toxic emissions below current PEL, or have no established PEL's.

Mr. Goldhammer reported that a sample of contractor furnished Crumb Rubber Modified Asphalt Binder (CRMAB), was distributed to the Round Robin Test Group as well as to the Asphalt Institute and to Oregon State University, (OSU) for testing to determine reproducibility of results.

Dr. Rita Leahy reported that OSU is continuing their physical study of the wet vs. dry process in the use of CRMAB. Enthusiasm and interest has been reduced, partially due to the rescinding of the Federal mandate (ISTEA). The task force has nine (9) case studies, focusing mainly on the wet process. Western Research Institute (WRI), and Mr. Peter Sebaaly are currently researching chemical testing of binders. The binder report should be completed during the fall of 1997. University of California, Berkeley is working with OSU on mix design guidelines. California, Arizona and Florida continue to use Crumb Rubber Modified Binders.

Mr. Goldhammer finished by stating that CALTRANS is the only agency currently developing a Performance Based Binder Specification for CRMAB. However, the work OSU is doing may lead to such a specification. A complete copy of Mr. Goldhammer's report can be found as APPENDIX VI.

4. Data Base

Mr. Chuck Cook described the concept of the relational data base starting with the fields identified and defined by

the work done in the Excel spread sheet developed by Reed & Graham.

The data base would be made up of a number of tables having similar data to make it easier to work with. For example one table would have general information describing geography, design traffic information, project location and comments regarding the project. APPENDIX VII, is a handout detailing the setup of the tables for reference. The concept of the data base is to build in flexibility for ease of use and data analysis.

- B. Mr. Ron Reese reported on FHWA Binder Expert Task Group (ETG) Activities. The ETG has recommended changes be made to the AASHTO Provisional Specifications; the main focus of these changes relates to:

1) Equipment and Test Method Evaluation

2) Specification Validation

Mr. Reese pointed out some of the problems occurring with the following equipment and test methods:

- Bending Beam Rheometer (BBR): Manufacture bias was noted in m-value due to determination of zero time. Software modification for both Cannon and ATS machines. Mr. Reese noted that forty percent (40%) of the Rocky Mountain User Groups have received updated software from Canon which has resulted in with varying degrees of success in testing; might require a change in the hardware.
- Dynamic Shear Rheometer (DSR): The calibration of temperature versus stress needs closer attention.
- Pressure Aging Vessel (PAV): Found that the temperature exceedance of 10 minutes maximum was unnecessarily stringent, should be increased to 60 minutes maximum. Need addition of vacuum degassing procedure due to formation of air bubbles in residue.

- Direct Tension (DT): Definition of parameter and specification being conducted by subcommittee.

Included in his report was a letter written by the Technical Section Chairman-Bituminous Materials of the Oklahoma Department of Transportation, Mr. Jack Telford to Mr. John D'Angelo, Chair FHWA Binder ETG which itemizes changes that should be made to the AASHTO Provisional Specifications, **APPENDIX VIII.**

The specification problems relating to low temperature included:

- One test is inadequate to capture all distress mechanisms;

Single event extreme temperature drop -----	DT
Thermal fatigue cycling -----	BBR
Load induce thermal fracture -----	BBR
- Measurement temperature based on new pavement temperature algorithm;

Requires re-evaluation of property/performance data for determination of specification limits.

Problems associated with medium temperature included:

- $G^* \times \sin \delta$ inadequate parameter for binder contribution to fatigue.
- Subcommittee studying expanded range of binders in conjunction with fatigue to define appropriate parameters.
- Pavement deflection consideration needs to be factored into binder specification.
- Field performance/property data being gathered to determine specification limits of parameters defined in subcommittee study.

Mr. Reese answered many questions concerning low temperature as it relates to fatigue and stated that the specification needs to encompass these problems before

validation occurs. A copy of Mr. Reese's overheads can be found in **APPENDIX IX.**

Mr. Massucco thanked Mr. Reese and Committee members for all their efforts. This concluded the Paving Asphalt Committee's report. Mr. Massucco provided the Conference with the following Recommendations:

1. **Adopt PG Graded Binders for Optional Use and Evaluation**
2. **Continue Evaluation and Optional Use of Certified Supplier Standard Practice**
3. **Continue Development of Asphalt Rubber Binder Performance Specification.**

A time line for accomplishing these Recommendations can be found as **APPENDIX X.** Target for validation is set for the 1998 Conference.

III. ASPHALT MIXTURE COMMITTEE REPORT AND RECOMMENDATIONS

Dr. Rita Leahy, Chair of the Asphalt Mixture Committee reviewed the charges given to the committee at the 1996 Conference:

- 1) **Continue to interact with the FHWA, other User-Producer Groups and the Superpave Regional Centers regarding SHRP technology related to mix design and evaluation.**
- 2) **Continue to develop evaluation process for SHRP technology with emphasis on mixes working in cooperation with the Asphalt Paving Committee.**
- 3) **Continue to encourage the use of SHRP mix design technology on field projects to develop validation data.**
- 4) **Continue to report on the procurement and trials of Superpave software and equipment and the effect on binder selection.**

Concerning the first Charge, Dr. Leahy reported that the Committee has received reports from three FHWA Expert Task Groups (ETG)-Binder, Mix and Superpave Models. The important issues for each group are:

Binder ETG:

- suitability of fatigue parameter ($G^* \sin \delta$)
- BBR "m" values from different manufacturers (e.g., Cannon vs ATS)
- DDT equipment availability and test protocol
- use of both BBR and DTT in specification

Mix ETG:

- protocol to determine suitability of "new" gyratory compactors (i.e., other than Pine or Troxler)
- reducing the N_{design} matrix for gyratory compaction
- gradation control points and restricted zone
- RAP in mix design
- performance test to supplement volumetric mix design

Superpave Models ETG:

- low temperature models work reasonably well with unmodified mixes
- permanent deformation and fatigue models require extensive work
- phase two (2) work drastically revised by FHWA; details not yet available

Active participation was noted between the Superpave Centers at UNR and UCB, and the Asphalt Mixture Committee's activities. Both Centers have offered courses, UNR on mix design and UCB on SHRP technology with focus on performance testing and analysis. Attendance was lower than expected. The UCB Center has tentatively scheduled a course on Superpave mix design for November 1997, and short courses for February and April of 1998. Funding still seems uncertain and makes long range planning for the centers difficult.

User-Producer Groups progress varies, however nationally it was reported that by the year 2000 approximately two thirds (2/3) of the states are committed to using exclusively mix design. In 1996, thirty-nine (39) states tried Superpave PGs and thirty-four (34) states built pavements using volumetric mix design procedures. The Rocky Mountain UP group has taken the lead with regard to training and certification recommending a national standard of basic requirements for technicians.

Inadequate funding proved to hamper fulfilling the Asphalt Mixture Committee's second Charge. Three Task groups were formed to address three key problems: permanent deformation, fatigue and low temperature cracking. Test sections were nominated. However, shipping charges, time to prepare specimens, time required to test are much greater for mix design than for binder partially due to the size of the specimen required for testing. All participants while enthusiastic, had little or no discretionary funds set aside for these costs. Currently user agencies are conducting parallel mix designs (conventional and Superpave) and constructing test sections rather than attempting to tackle mix design and performance testing simultaneously. Progress among Conference members varies widely:

Alaska DOT:	parallel Superpave and Marshall mix designs
Arizona DOT:	15 + Superpave projects in various stages
CALTRANS:	3 Superpave projects scheduled for this season
FHWA:	≈ 50% of its projects specify PG binders
Nevada DOT:	6 projects with PG binders
Oregon DOT:	5 Sections parallel Superpave and Hveem designs
Wash. DOT:	4 Superpave this season; field monitored with gyratory; 4 more in 1998;
Los Angeles:	Full depth Superpave project this season;
Alameda Corr.:	Superpave project phase one- 71,000 tons, 2 more phases planned

Discussion pertaining to the possibility of locating discretionary funds necessary to offset costs and allow for the fulfillment of these Task Groups objectives was considered.

Charge number three has met with marginal success. Industry has taken a reactive rather than proactive stance; the attitude being "spec. it and we will build it. The Asphalt Mixture Committee has invited participation from aggregate suppliers, paving contractors, paving association personnel; FAA and Corps of Engineers, but attendance at meetings has been minimal.

With respect to the fourth Charge -- procurement of Superpave software and equipment and the effect on binder selection, the following was offered:

- All state user agencies have gyratory compactors in their central labs. Arizona's regional lab has a gyratory compactor. Several states have purchased ignition ovens for QC/QA purposes.
- Currently no one has purchased equipment with respect to Performance testing-Shear Tester (SST).
- The volumetric mix design software-windows version is scheduled for availability in Fall of 1997.

In concluding her report, a copy of which can be found in **APPENDIX XI**, Dr. Leahy made the following Recommendations for the Asphalt Mixture Committee to the Conference:

- 1) Pursue external funding to accelerate the implementation/validation effort.**
 - 2) Implement current asphalt mix technology not relating to SHRP.**
 - 3) Encourage User agencies to experiment with SHRP technology.**
 - 4) Re-convene the Conference in 1998.**
- A.** Mr. Ron Reese and Professor Carl Monismith gave the Conference members an overview of the continuing work of the Task Group on Fatigue. Mr. Reese introduced the workplan in two parts:

Part 1 -- Binder Parameter Identification

Part 2 -- Specification Limit Determination

Mr. Reese outlined the work using Shear Susceptibility of Viscosity and Shear Susceptibility of Delta. The overheads Mr. Reese used in his report are contained in APPENDIX XII.

Professor Monismith stated that it was necessary to look at the performance of the mix in the pavement section in order to correctly estimate fatigue life. Laboratory test results are not sufficient to guarantee good fatigue performance. The CAL APT program provides validation through the use of accelerated pavement testing in conjunction with laboratory testing and analysis to predict performance. A copy of Professor Monismith's handout can be found as APPENDIX XIII.

IV. PROGRESS OF AASHTO ACTIVITIES

Mr. Haleem Tahir, the SHRP Product Implementation Coordinator from the American Association of State Highways and Transportation Officials (AASHTO) updated the Conference on AASHTO activities. Four items were covered:

1) AASHTO's Standard Setting Process.

Standard setting process for provisional standards AASHTO Subcommittee on Materials (SOM) has fifty-two (52) voting members and many associate non-voting members who provide much needed input from technical working groups. The Materials Engineers ballot and approve the standards for publication. Once published, changes can be made through the balloting process. In June of this year, AASHTO will release a publication on interim provisional standards. Together with the 1996 edition the two books form a "complete set." Much of the input for these publications were received from the FHWA Technical Working Groups. This June edition will include PP26, PP28, MP2 and ignition oven test for the Superpave System. The Superpave activities are also supported by the AASHTO Materials Reference Laboratory (AMRL). The AMRL conducts a series of Round Robin tests twice a year on binders. On average thirty (30) labs participate in the program. The reports on this program can be obtained from AMRL. Other ongoing activities include:

- Supporting the Superpave Centers.
- Publishing standards for the acceptance of Gyratory Compactors (developed by the Superpave Centers)
- Reactivating the special program evaluation list (SPEL).
- Completion of NCHRP research on the QC/QA program for the Superpave System.
- Looking beyond Superpave protocols. (i.e., useful SHRP products that are not a part of Superpave.)

2) AASHTO's Lead States Program and how Superpave fits into it.

Mr. Tahir then discussed the novel and unique approach of the Lead States program in technology transfer. It draws on the concept of Users being teachers. Currently there are seven (7) technologies and twenty-four (24) states and local industry has been invited to participate. One of the seven (7) technologies is Superpave. The six states participating in the Superpave team are: New York, Maryland, Florida, Indiana, Texas and Utah, and undertook three tasks:

The intent:

- a) Get all team members on same wavelengths;
- b) Accelerate the use of Superpave in each state;
- c) Help others.

3) Work done by Superpave team.

This team "hit the ground running." It is this team's desire to see uniformity in specification application on a national level. The Superpave team has identified issues that need to be addressed by SOM or TWG.

- Gyratory Compaction N_d vs N_r
- Too many levels of traffic
- Pavement layer location versus level of compaction needed
- VMA: coarse vs fine
- Reduce flat and elongated aggregate requirement from five (5) to three (3)

- Fine angularity requirements for three (3) million ESAL or more, require forty-five (45) minutes for less than three (3) million ESAL
- RAP issue
- Asphalt modifiers continue to give murky picture
- Air temperature vs. pavement temperature as applied to the binder's selection process.

4) Industry's (NAPA) report on Superpave.

NAPA's white paper suggests caution in the use of Superpave, go slow and exercise a generous amount of engineering judgment. There remains unresolved problems regarding: RAP issues, absence of a torture test, and air vs. pavement temperatures. Mr. Tahir summarized his report by stating that by the year 2000 at least two-thirds (2/3) of the states will be using Superpave volumetric design.

V. STANDING COMMITTEE REPORT AND RECOMMENDATIONS

Mr. Bob Humer, Chair stated the Charge given to the Standing Committee at the Twenty Eighth Conference:

Respond to widespread issues or field problems relating to Pacific Coast Asphalt Specifications.

The Standing Committee was asked to perform a task by polling all members of the Conference to ascertain their positions on support for the Superpave Regional Centers. Mr. Humer sent out a questionnaire to all members of the Conference. Twenty-one (21) responses were received, the answers are as follows:

Superpave Training:	Seventeen (17) yes
Superpave Certification:	Twelve (12) yes
Superpave Round Robin Testing:	Fourteen (14) yes
Five Thousand Dollars Seed Money:	Five (5) yes, Two (2) maybe

Of particular importance was that all five (5) State DOT's - Alaska, Nevada, Oregon, Washington and California responded yes or maybe

to the funding of the Superpave centers. However California's support for the Superpave centers depends on the validation and acceptance of the Superpave technology by CALTRANS.

This completed the Standing Committees task and there was no further discussion. Mr. Humer's complete report can be found as **APPENDIX XIV.**

VI. CONFERENCE ACTION ON PAVING ASPHALT COMMITTEE RECOMMENDATIONS

Mr. Massucco reiterated the Recommendations made by the Paving Asphalt Committee:

- 1. Adopt PG Graded Binders for Optional Use and Evaluation.**
- 2. Continue Evaluation and Optional Use of Certified Supplier Standard Practice.**
- 3. Continue Development of Asphalt Rubber Binder Performance Specification.**

Much clarification was needed with regard to "optional use." A decision to add the phrase "...Continued Optional Use and Evaluation" was made. Finally a motion was made to the User Members to vote on the first Recommendation of the Paving Asphalt Committee:

It was,

MS&C to Adopt PG Graded Binders for Continued Optional Use and Evaluation.

N.B. Results: Seven (7) in favor, One (1) opposed, Zero (0) abstentions.

Then a motion was made to the Producer Members to vote on their willingness to supply if adoption occurs:

It was,

MS&C to Supply PG Graded Binders for Continued Optional Use and Evaluation.

N.B. Results: Nine (9) in favor, Zero (0) opposed, Five (5) abstentions.

The Conference then took on the second Recommendation made by the Asphalt Paving Committee. Discussion regarding the term "optional use" ensued, resulting in its removal.

It was then,

MS&C, unanimously to amend this by removing "Optional Use" from the Recommendation to now read:

2. Continue Evaluation of Certified Supplier Standard Practice.

The Conference Members as a whole then voted on the adoption of this Charge:

MS&C, to Charge the Asphalt Paving Committee to Continue Evaluation of Certified Supplier Standard Practice.

N.B.: Results: Thirteen (13) in favor, Seven (7) opposed, zero (0) abstentions.

The third Recommendation made to the Conference Members was,

MS&C, unanimously to Charge the Asphalt Paving Committee to Continue Development of Asphalt Rubber Binder Performance Specification.

The Conference thanked the Paving Asphalt Committee for their continued efforts and diligence.

VII. CONFERENCE ACTION ON ASPHALT MIXTURE COMMITTEE RECOMMENDATIONS

Dr. Rita Leahy asked the Conference Members to vote on the Asphalt Mixtures Recommendations, starting with the final Recommendation:

It was,

MS&C, unanimously to Reconvene the Conference in 1998.

It was,

MS&C, unanimously, to Charge the Asphalt Mix Committee to Encourage User Agencies to experiment with SHRP technology.

It was,

MS&C, unanimously, to Charge the Asphalt Mix Committee to implement current mix technology not relating to SHRP.

It was,

MS&C, unanimously, to Charge the Asphalt Mix Committee to Pursue external funding in order to accelerate the implementation/validation effort.

N.B.: The Asphalt Mix Committee hopes to meet jointly with the Paving Asphalt Committee to accomplish this plan.

The Conference applauded the efforts of the Asphalt Mix Committee.

VIII. EMULSION COMMITTEE REPORT AND RECOMMENDATIONS

Mrs. Shauna-May TecleMariam, Vice-Chair for the Emulsion Committee summarized the Charge given to the Emulsion Committee at the Twenty Eighth Conference in two parts:

- 1) Continue to identify performance of modified asphalt emulsions systems as compared to conventional systems and develop functional limiting values for modified emulsions.

- 2) Characterize the residue from various grades of asphalt emulsions and residue recovery methods available in the Conference Membership. Compare this data with current PG test methods to determine if there are common properties relating to performance.

The number of variables needed to be limited in order to accomplish these Charges. The Emulsion Committee chose one emulsion; CRS-2, and one supplier to provide this material. Six Laboratories participated, the residue was prepared in two ways:

- Residue 1 > One company supplied all the residue for each lab to test.
- Residue 2 > Each lab made their own residue by using conventional distillation for emulsions. Three (3) to Four (4) distillations had to be run in order to arrive at enough material to test.

Analysis of the data provided the following:

- The BBR works best on well-aged material for emulsions.
- There seems little difference on results of the PAV aged material and the RTFO/PAV aged material.
- SHRP equipment can be used in testing emulsion residues.

The Committee concluded that for this particular emulsion, CRS-2, the RTFO is stiffening the residue but not significantly enough to move the results a grade in the SHRP specifications. Thus the RTFO test may not be necessary for studying emulsion residues since the PAV appears to sufficiently age the residue.

The Emulsion Committee has not been able as yet, to relate these findings to performance or to apply these findings to all emulsions. As a result, the Committee's ongoing work includes:

- 1) Redoing the tests again with the residues prepared the same way.
- 2) Trying a different supplier's emulsion (CRS-2)
- 3) Trying a different type of emulsion.

- 4) Determining the significance of tests and if they relate to performance.
- 5) Adding more people to obtain enough results to determine any standard deviations.

The Conference thanked Mrs. TecleMariam and the Emulsion Committee for their tremendous efforts this past year. A Complete copy of Mrs. TecleMariams' report is included as APPENDIX XV.

It was,

MS&C, unanimously that the Emulsion committee's Charges be continued.

IX. REPORT FROM ROCKY MOUNTAIN USER PRODUCER GROUP

Mr. Tom Claret stated that the Members of the Rocky Mountain User Producer Group are currently interested in implementation of some of SHRP activities. Particularly a national program for training and certification, some discussion followed.

X. PROGRESS OF ASTM ACTIVITIES

Mr. Mike Doyle gave the Conference a brief report regarding ASTM activities. The next meeting will be held in June. APPENDIX XVI is a copy of the Ballot issues for 1996; D977, D2397, D3628, D5505.

Mr. Doyle stated that the Pacific Coast Conference is where some specifications originated, then ASTM adopted them. Reiterating the proactive stance the Conference needs to take. He urged the Conference to "come up with a brand new standard for a chemically modified specification."

XI. SUPERPAVE REGIONAL CENTERS

Dr. Jon Epps stated that it takes approximately one hundred thousand dollars (\$100,000.00) over a two year period up to June of 1998 to run the Centers. Funding of the Centers was discussed. One possibility would be to have the FHWA in provide money for the State agencies which in turn support the centers.

Equipment and Training are the two main factors that the Centers are focusing on. The SST and IDT have been delivered and setup. Preliminary testing has taken place and some equipment modification is required. Training for technicians has been offered by the UNR center but attendance has been poor.

Mr. Larry Santucci reported that UCB is participating with UNR in SST and IDT ruggedness testing. Training courses are also being offered at UCB

- Volumetric Mix Design, 3 day less intensive than the 5 day offered at UNR
- Superpave Mix Design and Analysis, currently 2 graduates:
Tom Stone and Ricardo Villacorta
- Asphalt Pavement Principals/Fundamentals, 3 days in December focusing on design, construction and rehabilitation.

The objective of these training classes is to accelerate technology transfer from research into practice.

XII. RECOMMENDATIONS FOR FUTURE ACTIVITIES

Mr. Jim Walters, Co-Chair for the User Agencies, stated that "we are doing a great job, In God we trust, everybody else -- data." Encouraged all Task Group Members to actively participate and to "seek out others" for participation.

Mr. Rick Holmgreen, Co-Chair for the Producer Representatives, stated he was glad to go forward on QC. Wanted to congratulate Committee Chairpeople on notification of meeting dates ahead of time. He also thought it would be a good idea to take a proactive approach rather than reactive approach in the National User-Producer Meeting to

be held May 29, 1997. For example, PP-26 will be discussed, what does the Pacific Coast Conference Members want? Take concerns of the Conference to the Meeting. Discussion followed relating to the idea of User-Producers Groups issuing standards or procedures, are we in agreement with the Rocky Mountain User-Producer Group? Endorse Asphalt Mixture Committee to come up with specifications.

XIII. FUTURE CONFERENCES

By action taken during the Conference Action on Asphalt Mix Committee segment of this Conference, the User and Producer representatives assembled agreed to schedule the Thirtieth Pacific Coast Conference on Asphalt Specifications for May 12-13, 1998, at the University of California Berkeley, Richmond Field Station, affectionately dubbed, "Carl's Ranch."

XIV. RESOLUTIONS

At the conclusion of the Conference, the following Resolution was passed by the User Agency Representatives in attendance:

Whereas, government agencies use asphalt materials in construction and maintenance of pavements for transportation facilities and

Whereas, the quality, durability, and uniformity of asphalt's as well as their continued supply are in the interests of everyone and

Whereas, the present state-of-the-art is insufficient to permit comprehensive development of completely informative and meaningful specifications or effective control procedures and

Whereas, financial and environmental constraints require the controlled development of technology for the production and use of asphalt materials and

Whereas, it is evident that the combined understanding, knowledge, efforts, and tolerant viewpoints of both Producers and Users are needed to solve the problems. Now be it;

Resolved that the asphalt Users here present express sincere appreciation for the continuing efforts of the Producers of asphalt for their initiation of, and involvement in, the many Pacific Coast Conferences on Asphalt Specifications, the latest being this at the University of California at Berkeley, Richmond Field Station on May 13-14, 1997, and strongly urge that such Conferences be continued, it being the firm consensus that such Conferences are in the public interest.

In response, the Producer representatives in attendance unanimously passed the following resolution:

Whereas, the purpose of the Pacific Coast Conference on Asphalt Specifications is to promote quality, durability and uniformity of asphalt's and uniformity of asphalt specifications, and

Whereas, considering the diversity of specifications among Conference Member agencies, the working of the Conference provides a forum for discussion of asphalt problems, and provides technical study on asphalt subjects, and

Whereas, The Paving Asphalt Committee of the Conference, charged to re-evaluate the specifications adopted by User agencies in previous years, has diligently pursued the task of introducing a Performance Based System for asphalt binder grades, and

Whereas, this same Paving Asphalt Committee composed jointly of User and Producer representatives, has undertaken its task with combined understanding, knowledge, efforts, and tolerant viewpoints; Now be it;

Resolved that the Asphalt Producer representatives here present express sincere appreciation for the continuing efforts of the User agency representatives for their initiation of, and involvement in, the many Pacific Coast Conferences on Asphalt Specifications, the latest being this held at the University of California at Berkeley, Richmond Field Station on May 13-14, 1997, and strongly request that such Conferences be continued.

XV. APPRECIATION TO MODERATOR, ET AL

By general acclamation, the Conferees expressed their sincere thanks and appreciation to Professor Carl L. Monismith for his excellent handling of the Conference as Moderator. His detailed knowledge of the subjects discussed and expertise in guiding all of the deliberations, contributed immeasurably to the success of this Conference. In the same action, the Conferees expressed appreciation to the staff of University of California Berkeley, Richmond Field Station, specifically, Maggie Paul and David Kim for making its facilities available. Also thanked for her contribution was Lisa Economy.

XVI. ADJOURNMENT

With no further business before the meeting, the Conference was adjourned at 3:50 p.m. on Wednesday, May 14, 1997.



J. F. Pearring
Secretary

APPROVED:



C. L. Monismith
Moderator