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Who's WUPe?

The Western Canadian User-Producer Exchange, or WUPe, was formed in 2001 to provide stakeholders in the western Canadian asphalt industry with a vehicle to exchange information.

A Steering Committee consisting of the four western Departments of Transportation (DOT), major cities, asphalt refiners, contractors, consultants and asphalt resellers was formed to provide guidance for WUPe. The Asphalt Institute was also engaged to provide input on technical issues.

WUPe's first task was to develop an implementation work plan for the adoption of Performance Graded Asphalt Cement (PGAC) specification in western Canada. To that end, the group prepared a (draft) issues paper outlining the needs and requirements for a PGAC implementation plan. Secondly, the group completed an initial benchmarking of current western Canadian asphalts which documented where the current supply falls within the PGAC grading system.

Work is currently underway to finalize a QC/QA plan for PGAC binder testing and acceptance as part of the implementation plan. However, the most difficult task still being debated by WUPe is to establish consensus on which straight-run PGAC grades will form the backbone of the PGAC specification system in western Canada.

WUPe Steering Committee

Lyle Kajner – Co-Chair	Husky Energy
Hugh Donovan – Co-Chair	City of Edmonton
Leonnie Kavanagh	Manitoba Transportation & Government Services
Magdy Beshara	Saskatchewan Highways & Transportation
Chuck McMillan	Alberta Infrastructure & Transportation
Mike Oliver	British Columbia Highways & Transportation
Darwin Kupskay	City of Winnipeg
Colin Prang	City of Saskatoon
Ken Yeung	City of Calgary
Jeff Markovic	City of Vancouver
Matt Aurini	Shell
Tom Latimer	Moose Jaw Asphalt
Sarah Marx	Esso
John Meneghello	Chevron
Ivan Chrusch	McAsphalt Industries
Jon Knutson	Colasphalt
Ward Sparrow/Bob Forflyow	McTar/Lafarge
Wayne Mah	AMEC
Tony Manzi	GECAN

Survey: PG Implementation In Western Canada

Since the development of Superpave, questions have been raised regarding the PGAC specification and its implementation in western Canada.

To that end, WUPe developed a questionnaire to survey the western owner/agencies with respect to a preliminary timeline for implementation of the PGAC specification in western Canada.

A total of two questions were asked of each agency. First, are you planning on implementing the PGAC system and if so, what are your anticipated timelines? Secondly, if you are not planning on implementing the PGAC system, can you clearly identify any sticking points for delaying implementation?

A total of nine questionnaires were sent out to the Steering Committee member-agencies. Of the nine agencies surveyed, seven indicated that they are anticipating some form of PGAC implementation. The following is a summary of the responses received.

1) Are you planning on implementing the PGAC system, and if so what are your anticipated timelines?

- The City of Vancouver indicated that they are considering a joint CGSB and PGAC specification for their liquid asphalt supply tender.
- The City of Edmonton is currently using the PGAC specification for specifying asphalt for many of its specialty mixes (i.e. SMA's and modified ACB base mixes). The City of Edmonton feels that it is just a matter of time before all its mix types will be specified using the PGAC system.
- The City of Saskatoon indicated that they are anticipating implementation of the PGAC specification.
- Alberta Infrastructure and Transportation indicated that they are currently using the PGAC specification for calling projects which use modified asphalt.
- The City of Calgary allows both PGAC and Penetration /Viscosity (Pen/Visc) graded asphalt cements. Capital projects which are tendered for construction by contractors specify PGAC.
- Manitoba Transportation implemented a PG 'Plus' binder specification (with Elastic Recovery) in April 2005. For new construction on high volume roads the Department will specify PGAC. For new construction on low volume roads, or overlay construction, the option of specifying either PGAC or penetration/viscosity asphalt is available (based on the cost).
- The City of Winnipeg indicated that they anticipate implementation of the PGAC specification and that their implementation will be based on implementation by Manitoba Transportation.
- Saskatchewan Highways and British Columbia Highways have indicated that they do not anticipate PGAC implement-ation at this time.

2) If you are not planning on implementing the system can you clearly identify any sticking points for delaying implementation?

- Many of the respondents commented that perhaps "lower quality" asphalt could be supplied under the PGAC specifications. They opined that there was no assurance by the suppliers that these "lower quality" grades may be supplied under a PGAC system. The agencies commented that they were concerned about the future performance of these lower quality asphalt cements.
- All agencies feel comfortable with the binders that they currently receiving, and are therefore hesitant in going to the PGAC specification if it will allow B and C grade crude to be utilized.
- In the responses, several of the agencies indicated that the cost of quality control and quality assurance testing for PGAC is a sticking point for implementation. The market price for PGAC grade determination is about $1,000 compared to $200-300 for a comparable Pen./Vis. sample. The number of laboratories with the equipment to perform PGAC testing is also very low which could drive up the cost of PGAC testing.
- Respondents opined that the binder is just one component of the entire pavement system. While PGAC binders may contribute to a longer lasting pavement, not enough work has been done to determine the influence of the other materials/ properties of the asphalt mix. In most municipalities, the prevalent mode of pavement failure is rutting, which is more aggregate related than binder. Therefore, they feel it is may be more beneficial to spend their dollars on enhancing the quality of the aggregate rather than the quality of the binder.
- There appeared to a general agreement within all agencies regarding a systematic approach to combating pavement rutting instead of grade bumping the binder alone. Low temperature cracking however was thought to be more binder related and should be addressed via the PGAC specification.
- Some of the agencies responded that they do not foresee a "need" to implement the PGAC specification exclusively. The agency opined that they prefer to maintain the flexibility offered by using both specifications.

Benchmarking Western Canadian Crude Using PGAC

All five of the western Canadian asphalt refiners provided test results of their straight–run Pen/Visc graded asphalt for benchmarking against the PGAC specification. The refiners that participated in the study were:

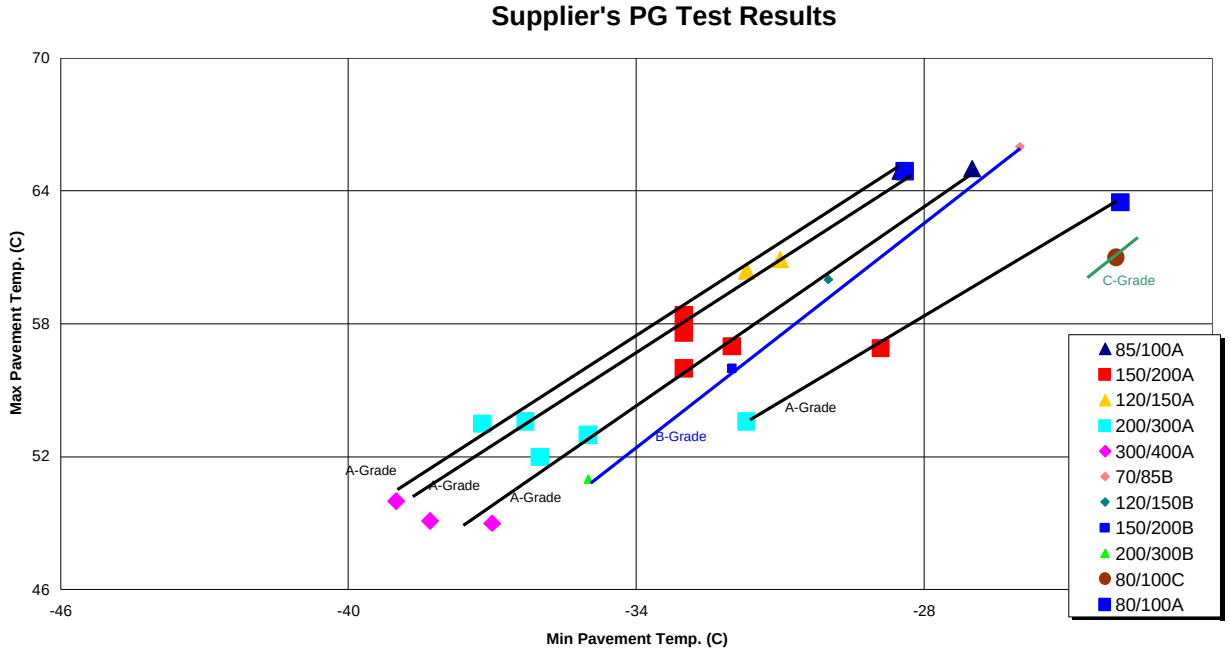
- Moose Jaw Asphalt, (Moose Jaw)
- Husky Energy, (Lloydminster)
- Esso, (Edmonton)
- Shell, (Three Creeks)
- Chevron, (Vancouver)

The current range of Pen/Visc graded asphalts manufactured by each refiner plotted as (relatively) straight lines in the PGAC graph shown below.

Some of the existing grades fit neatly into the PGAC "6°C interval boxes", but many do not. Of particular concern, was the 150/200A which plotted in several of the 6°C grade boxes. As a result of this benchmarking, WUPe is considering splitting the low temperature grade into "non-conventional" intervals. A final decision on the straight-run grade matrix for western Canada has not been concluded as we continue to debate over balancing issues like: minimizing grade proliferation, maximizing grade choices, managing cost, and maintaining quality as we migrate to the new PGAC specification.

The study also identified that different crude sources resulted in different asphalt 'quality' when tested under the PGAC specification versus the Pen/Visc specification. Some of the existing "A-grade" products plot worse than the "B-grade" products under the PGAC specification. This anomaly remains to be investigated.

Ultimately, we must develop the specification based on "what we need in the future and not necessarily what we've received in the past".



Asphalt Innovations in Western Canada

WUPe has a unique (and extensive) cross section of stakeholders in the western Canadian asphalt industry. In an attempt to leverage the group's experiences, we have assembled a list our current 'hot' topics in Western Canada.

The list is by no means exhaustive, but provides an opportunity for us to share our innovative practices and "lessons learned" with others in our industry.

If you are interested in any of the topics identified, we suggest you contact the person indentified in the table below directly.

We hope you find this summary useful.

Organization	*Innovation*	*Contact*
Ministry of BC Highways	• Micro surfacing (see CTAA 2005) • Crumb Rubber - Wet Process (See CTAA 2005) • Tendering - P3 Contracts	Mike Oliver 250-387-3353

Alberta Infrastructure	• Crumb Rubber
	  ○ Wet Process (2005)
	  ○ Terminal Blend – Lethbridge (2004/05)
	• Tendering
	  ○ 30 Year P3 Contracts (2004)
	  ○ 30 Year Design-Build-Maintain Contract (2002/04)
	  ○ Alternative bid allowance for conventional vs modified PGAC based on LCC Adj. Factors
	• PGAC – 17 projects using PG 58-34, 4 projects using PG 58-37, 1 projects using PG 58-40 and 2 projects using PG 70-28
		Chuck McMillan
		780-415-4875

Sask. Highways	• Crumb Rubber - Wet Process (2005) • Foamed Asphalt – planned for 2006 • Thin Lift (10-15 mm typ.) Overlays - PMA and 150/200A (2004-2005) • PGAC - PG 58-34 Trial in 2005 • High Stability Intersection Treatments using PMA (2005) • TCM-8000 Micropatching machine (see CTAA 2004)	Magdy Beshara 306-787-4922
Manitoba Highways	• PGAC - PG 58-34 used in Winnipeg (2005) - smaller trial near Swan River (2004) • Bridge Mastic Mix used on a Wooded Deck (see 2004 CTAA) • Microsurfacing – projects in 2003/04/05	Leonnie Kavanagh 204-945-1941
City of Saskatoon	• Thin Lift Overlays – Smoothseal, 20 mm overlay using PMA (2004) • Micro surfacing, extensive use since 1996 • High-Stability Mixes using various PGAC (& PMAs) on main arterial streets • Bridge Mastic Mixes using PMA	Colin Prang 306-975-2270
City of Edmonton	• SMA (Stone Mastic Asphalt) (see CTAA 2004) • SEAM (Sulfur Extend Asphalt Mix) trial completed (2004) • Crumb Rubber - Wet Process, many applications (2003-2005) • Foamed Asphalt extensive program beginning in 2001 (see CTAA 2003) • Bridge Mastic Mixes using PMA • RAP – significant mix testing program completed in 2005	Hugh Donovan 780-496-4245
City of Calgary	• PGAC – widespread use, PG 64-31, PG 58-31, and PMAs • High-Stability Mixes using various PMAs • SMA (Stone Mastic Asphalt) several trial over past several years • SEAM (Sulfur Extend Asphalt Mix) trial (2004) • WAM (Warm Asphalt mix) trial completed on a collector street (2005) • Bridge Mastic Mixes using PMA	Ken Yeung 403-268-5016
City of Vancouver	• PGAC - PG 70-22 (2005), smaller trials in 2004 • RAP - ?	Jeff Markovic 604-301-0354
Other Jusidications (a few examples)	• City of Lethbridge - High Stability mixes using PGAC, PG 64-31, PG 76-31 and PG 70-31 (MP1A), PMA, Subgrade Stabilization using emulsions, Crumb rubber (Wet and Terminal processes) • City of Kelowna – High performance Intersection Treatments using PGACs • Calgary Airport Authority – PGAC (PG 64-31) • Cold Lake Air Force Base – PGAC (PG 58-37)	Contact WUPe for more info

Contact Us

If you are interested in obtaining more information about WUPe or would like details on the articles presented in this issue, please contact WUPe co-chairs: Lyle Kajner (403 298 -6104) or Hugh Donovan (780-496-4245).