Ontario
MINISTRY OF TRANSPORTATION

TCP # 000-0300

SSP 111S15 for amendment to OPSS 1101, November 2020 – Additional Testing and Acceptance Requirements for Performance Graded Asphalt Cement (PGAC) and Recovered Asphalt Cement (RAC)

SSP 103S58 for amendment to OPSS 313, April 2021 – Additional Hot Mix Asphalt Sampling and Testing Requirements for Acceptance of Recovered Asphalt Cement (RAC)

Comment ID	Comment number	Organization	Comment	Response
577	577-1	Individual	There is concern that MTO quality assurance standards for Bitumen will fail to prevent integration of waste motor oil into the Bitumen significantly degrading the adhesive properties and leading to early failure of pavement.	To limit the potential use of waste motor oil/REOB in bitumen, ash content limit of maximum 1.0 % is incorporated into Table 1 of SSP 111S15. MTO's RAC Correlation Proficiency Program and LS-284 already limit ash content to ≤ 1.0 %.
	577-2		Careful consideration and consultation with industry neutral chemical engineering experts is required to ensure that Bitumen quality assurance standards and testing serve the public interest. An excellent example of the impacts of poor bitumen quality has been documented by …….. efforts by ……..in Ontario Canada.	MTO has always valued expert input and consultation with industry partners, contractors, suppliers, and academic stakeholders. The collaborative initiatives by MTO have supported the development of extensive test methods which are used in specifications to distinguish high-quality asphalt materials from lower-quality products in order to mitigate fatigue and thermal cracking tendencies. Furthermore, the consultation was extended to include other stakeholders through introduction of Technical Consultation Portal.

	577-3		Proposed quality assurance initiatives by the MTO have the potential to be bypassed while meeting standards. There is concern that standards may be met while failing to identify integration of used motor oil which counter acts the binding properties of the Bitumen.	Keeping the ash content acceptance limit of 1.0 % is an effective approach to prevent the incorporation of waste motor oil or similar prohibited products into bitumen for RAC specification at this stage.
	577-4		Testing must include efforts to capture common chemicals in motor oil including typical detergents common to engine oils designed to keep engines clean. In addition, suppliers should be responsible for the presence of these counter productive chemicals in the finished paved product.	LS-299 (DENT) and LS-308 (ExBBR) are included for information purposes only at this stage for RAC. However, for corresponding tank AC, both methods have well established acceptance criteria in capturing the effect on its properties.
	577-5		Sampling of the finished surface must be a standard practice to test for contaminants that are counter productive to road performance with the supply chain being responsible for the finished product meeting requirements.	At this stage, RAC sampling and testing is done on loose mix.
	577-6		Industry is responsible to serving the best interests of the taxpayer through fair business practices and delivery of a high quality product and service. Testing protocols and standards must enforce this. If Ontario's roads last longer, then the budget can be restructured to focus on development rather than endless repair and we can make progress as a society.	RAC specification is a way forward in ensuring that taxpayers are served through high quality deliverables of finished paved product. The testing practices in accordance with the latest testing standards and protocols strengthen our ongoing efforts to distinguish high quality finished product from poor quality, leading ultimately to pavement durability and longevity.

582	582-1	ORBA	CAIS 1101-01 Document 1101.08.04 Basis of Acceptance: The removal of the second item regarding anti-stripping treatment should remain in place as there is potential for the impact of the anti-stripping treatment on the RAC test results depending on the anti-strip source.	This clause was previously removed from NSSP BITU0027 effective September 05, 2024. The corresponding CAIS has now been updated to align with the revisions made in BITU0027, and the same change has also been carried forward into the CAIS of recent SSP 111S15. Moreover, PGAC and RAC with or without AST-AC is required to comply with all the material requirements specified in the contract documents, including OPSS 1101 and AASHTO M 320 for the specified grade.
	582-2		SSP 103S58 Document: It is noted that LS-284 using the rotavapor is the only method to recover AC as we agree that it removes another variable in the AC extraction and help minimize additional variability and improve repeatability of results. It is essential that this stays in place and no other method for extraction is added.	LS-284 was introduced to reduce the variability and will be kept for the RAC SSPs.
	582-3		SSP 111S15 Document: Removal of the tolerances for the acceptable category in Table 1 doesn't account for testing variability in the recovery of the asphalt cement. MTO has documented this variability before in past correlation programs. It is suggested to have at least a 1.0 ^{o}C tolerance.	The RAC acceptance criteria for XX and YY is kept as mentioned in Table 1. Analysis of MTO's RAC Correlation data, supplemented by data from selected contracts, indicates that all evaluated contracts satisfied the XX and YY acceptance limits for the specified RAC grade. The tolerance limit of 2.0^{o}C for minor borderline encompasses the variability for RAC. Therefore, minor and major borderlines were integrated to cover any variability for isolated cases.

	582-4		Furthermore, the previous NSSP only applied to virgin surface mixes but now apply to all mixes including those containing RAP that could add additional variability to the results.	The previous NSSP BITU0028 addressed both surface course and binder course mixes as outlined in Table 2B. This Table is carried forward for SSP 103S58. Additionally, it was intended to integrate mixes with 20% binder replacement. However, for mixes with 40% RAP, the binder shall comply with OPSS 1101. RAC for such mixes should have to pass the designed temperature requirements stated in Table 1 for the specified grade as per the contract documents. Moreover, minor and major borderlines are integrated to cover any additional variability for isolated cases with or without RAP.
	582-5		Additional Comments: Please consider pushing changes to July 2027 when Specification Harmonization is said to take effect. The reasoning for this is that another set of specification changes for 2026 means additional formulations are required from the asphalt cement terminal and another version of the PG grade is needed at the asphalt plant where municipal owners have different requirements for their contracts.	The current SSPs should be considered within the context of improved RAC specification at Provincial level. Specification Harmonization is related to Municipal specification and has a separate mandate and framework.
	582-6		Alternatively, we suggest implementing these specifications for virgin mixes only, if the tolerances as per Table 1 are set as suggested in the draft specifications.	The limits specified in Table 1 of SSP 111S15 are applicable to all mix types listed in Table 2B of SSP 103S58. Analysis of MTO's RAC Correlation data, supplemented by data from selected contracts, indicates

				that all evaluated contracts satisfied the XX and YY limits for the specified RAC grade. Moreover, the tolerance of 2.0 °C applied to minor borderline category accounts for the observed variability in the mixes.
	582-7		Additionally, the RAP mix test results for the PG grading would be for informational purposes only.	It was intended to integrate mixes with 20% binder replacement. However, for mixes with 40% RAP, the binder shall comply with OPSS 1101. RAC for such mixes should have to pass the designed temperature requirements stated in Table 1 for the specified grade as per the contract documents. Moreover, minor and major borderlines are integrated to cover any additional variability for isolated cases with RAP.