

MP 401.03.50

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
MATERIALS CONTROL, SOIL AND TESTING DIVISION

MATERIALS PROCEDURE

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GUIDE FOR QUALITY CONTROL AND  
ACCEPTANCE FOR HOT-MIX ASPHALT

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1.0 PURPOSE

1.1 This procedure presents quality control guidelines which should be used when the Contractor (Producer) develops his Quality Control Plan. All items listed are believed necessary to assure adequate product quality control.

2.0 SCOPE

2.1 This procedure is applicable to hot-mix asphalt base, wearing, and patching and leveling courses.

3.0 GENERAL REQUIREMENTS

3.1 As stated in the specifications, a quality control plan must be developed by the producer and submitted to the Engineer prior to construction. Acceptance of the quality control plan by the Engineer will be contingent upon its concurrence with these guidelines. For this reason the plan should clearly describe the methods by which the quality control program will be conducted. For example, the items to be controlled, tests to be performed, testing frequencies, sampling locations and techniques all should be included and each item should be listed separately. Also, a detailed plan of action regarding disposition of nonspecification material should be included. Such a plan should provide for immediate notification of all parties involved in the event nonconforming situations are detected. Attachment 1 may be used as example quality control plans for plant operations. Attachment 2 may be used as an example quality control plan for field operations.

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- 3.2 Inspection and testing records should be maintained, kept current, and made available for review by the Engineer throughout the life of the contract. All other documentation, such as date of inspections, tests performed, temperature measurements, and any accuracy, calibration or recalibration checks performed on production or testing equipment should be recorded.
- 3.3 The Contractor should maintain standard equipment and qualified personnel in accordance with contract and specification requirements for the item(s) being produced.
- 4.0 QUALITY CONTROL PLAN
- 4.1 Field operation quality control plans shall be submitted for each project to the District in which the project is located. The Contractor must submit the plant quality control plan yearly to the District in which the plant is located. Distribution of the approved quality control plan will be made by the Division.
- 5.0 HOT-MIX ASPHALT FOR MAINTENANCE
- 5.1 The provisions of this procedure will apply to hot-mix asphalt concrete which is picked up at the plant by the Division's Maintenance forces. Exceptions to this is as specified in the purchase order.
- 6.0 VERIFICATION SAMPLING AND TESTING
- 6.1 Verification sampling and testing is the responsibility of the Division. Verification activities may be accomplished in any of three ways: 1) By conducting sampling and testing completely independent of the quality control activities, 2) by witnessing tests performed by the Contractor, or 3) by a combination of both the above. In all cases, those samples and tests taken by the Division completely independent of the Contractor will be taken at a frequency equal to or greater than 10% of the frequency required in the Contractor's approved quality control plan for the applicable item.

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Gary L. Robson, Director  
Materials Control, Soil  
and Testing Division

E X A M P L E

Mr. \_\_\_\_\_  
West Virginia Division of Highways  
District \_\_\_\_\_ Engineer  
\_\_\_\_\_, West Virginia

Dear Mr. \_\_\_\_\_:

Subject: Hot-Mix Asphalt  
Quality Control Plan  
for Plant Operations

We are submitting our hot-mix asphalt quality control plan, developed in accordance with Section 401 of the \_\_\_\_\_ Standard Specifications, the \_\_\_\_\_ Special Provisions, and MP 401.03.50.

1. Make of Plant                      Type                      Location  
\_\_\_\_\_
2. The quality control program is under the direction of \_\_\_\_\_, who can be contacted at \_\_\_\_\_, telephone number \_\_\_\_\_.
3. Sampling and testing will be the responsibility of \_\_\_\_\_, hot-mix technician number \_\_\_\_\_.
4. The types and MC-14 Lab Numbers of asphalt paving materials to be used are:
  - (a) \_\_\_\_\_, (d) \_\_\_\_\_
  - (b) \_\_\_\_\_, (e) \_\_\_\_\_
  - (c) \_\_\_\_\_
5. Prior to production of the items, we will submit (on Division Form MC-14) our plant mix formula for each type of mix. Only approved materials will be incorporated in the mix.
6. During the production operations of the hot-mix asphalt we will perform at a minimum quality control tests in accordance with the attached schedule.

7. All testing and evaluation will be completed within 24 hours of sampling and all documentation will be completed and submitted to the Division on approved processing forms within 72 hours or production will be halted until these items are current.
8. Material found to be noncomplying shall not be incorporated into the roadway. In the event that nonspecification material is incorporated into the project, the Division of Highways District Materials Supervisor will be notified immediately.
9. We will notify all appropriate Division of Highways personnel at least 24 hours before the scheduled work is to begin.
10. (Statement of disposition of nonconforming material) \_\_\_\_\_  
\_\_\_\_\_.

Very truly yours,

\_\_\_\_\_  
Company Representative

<u>TEST OR ACTION</u>	<u>FREQUENCY</u>	<u>TEST METHOD</u>	<u>METHOD OF DOCUMENTATION</u>
Construction of stockpile to prevent segregation intermingling	Constant	Visual	Diary
Coarse aggregate face fracture	One test before start of operation	MP 703.00.21	ST 14
Complete mix face fracture	Every 10,000 megagrams thereafter		
Coarse aggregate unit weight	One per week	MP 703.00.21	ST 14
Stockpile & cold bin, gradations	One test before start of operation	AASHTO T19	ST 16
Calculate % aggregate from each bin, calibration cold bin	Plant setup Weekly during production	AASHTO T11 & T27	SL5A
Check feeder gate output at gate setting to be used	Plant setup		Combined Gradation Worksheet
Select screen sizes	Plant setup		Plant Inspection Form Diary
Determine hot bin gradations, calculate combined gradations	Plant setup	AASHTO T11 & T27	Plant Inspection Form SL5A & Combined Gradation Worksheet
Calibrate hot bins, select gate openings	Plant setup		Plant Inspection Form Diary
Calibrate asphalt pump, Calculate setting	Plant setup		Plant Inspection Form
Check metering pump at setting to be used	Plant setup Monthly		Plant Inspection Form Diary

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<u>TEST OR ACTION</u>	<u>FREQUENCY</u>	<u>TEST METHOD</u>	<u>METHOD OF DOCUMENTATION</u>
Reset metering pump to compensate for temperature change	Plant setup		Plant Inspection Form
Calculating mixing time	Each temperature change of 6°C		Diary
Ross Count (degree of coating)	Plant setup		Plant Inspection Form
Adequate heated storage for liquid asphalt	If paddle pitch or dam gate changed		Diary
Asphalt content	Only if mixing time is less than 45 seconds	AASHTO T195	Diary
Aggregate gradation (cold feed, hot bins, or completed mix)	Plant setup		Plant Inspection Form
Temperature check	As needed to control process	MP 401.02.20 AASHTO T164	SL50A, B, or approved documentation
Daily Mix Design Verification Tests	As needed to control process	AASHTO T27 and T11 OR AASHTO T30	SL5A or SL50C
Stability and Flow	Minimum of one test of mix per hour at plant		Plant Control Chart & Diary
Air Voids	Minimum of one test (3 specimens) per day		Approved Documentation
Unit Weight			
VMA		AASHTO T245 or PA Test No.705 AASHTO T269 AASHTO T166 MS-2	
Maximum Specific Gravity	Minimum of one per day	AASHTO T209	

E X A M P L E

Mr. \_\_\_\_\_  
West Virginia Division of Highways  
District \_\_\_\_\_ Engineer  
\_\_\_\_\_, West Virginia

Dear Mr. \_\_\_\_\_:

Subject: Hot-Mix Asphalt  
Quality Control Plan  
for Field Operations

We are submitting our hot-mix asphalt quality control plan for field control, developed in accordance with Section 401 of the \_\_\_\_\_ Standard Specifications, the \_\_\_\_\_ Special Provisions, and MP 401.03.50.

1. The field operation is under the direction of \_\_\_\_\_, who can be contacted at \_\_\_\_\_, telephone number \_\_\_\_\_.
2. \_\_\_\_\_ will be responsible for insuring that all items of work will comply with Division specifications.
3. During the placement operation of the hot-mix asphalt pavement we will perform at a minimum quality control tests per attached schedule. Sampling and testing will be the responsibility of \_\_\_\_\_, compaction technician number \_\_\_\_\_.
4. All sampling and testing will be completed within the time limits specified by the Division or work will be halted.
5. Material found to be non-complying shall not be incorporated into the roadway. In the event that non-specification material is incorporated into the project, the Division representative will be notified immediately.
6. We will notify all appropriate Division personnel at least 24 hours before work is scheduled to begin.

Very truly yours,

\_\_\_\_\_  
Company Representative

STANDARD SCREED CONTROL

<u>TEST OR ACTION</u>	<u>FREQUENCY</u>	<u>TEST METHOD</u>	<u>METHOD OF DOCUMENTATION</u>
Temperature of mix	1 per hour	Section 401 of Standard Specifications	Diary
Temperature of base	1 per hour	Section 401 of Standard Specifications	Diary
Temperature of mat	1 test per hour of placement		Diary & MP 401.05.20
Density	5 tests per 300 meters of paving width	Section 401 of Standard Specifications	MP 401.05.20
Tack/Prime	Each load or per 1/2 day of operation whichever occurs first	Section 408/409 of Standard Specifications	Diary
Pavement application	Application rate will be checked every	Section 401 of Standard Specifications	Diary
Calibration of Nuclear Gauge	As per MP 717.04.21	As per MP 717.04.21	Factory Data Sheet
Distribution of Test Data	Within 24 hours of completion of testing of a lot	As per MP 717.04.21	As per MP 717.04.21



AUTOMATIC SCREED METHOD

<u>TEST OR ACTION</u>	<u>FREQUENCY</u>	<u>TEST METHOD</u>	<u>METHOD OF DOCUMENTATION</u>
Temperature of mix	1 per hour	Section 401 of Standard Specifications	Diary
Temperature of base	1 test per	Section 401 of Standard Specifications	Diary
Temperature of mat	1 test per hour of placement		Diary & MP 401.05.20
Density	5 tests per 300 meters of paving width	Section 401 of Standard Specifications	MP 401.05.20
Tack/Prime	Each load or per	Section 408/409 of Standard Specifications	Diary
Pavement application rate (automatic screed)	A paver with calibrated & properly operated automatic screed control will be used. The screen control will be checked every _____	Section 401 of Standard Specifications	Diary
Calibration of Nuclear Gauge	As per MP 717.04.21	As per MP 717.04.21	Factory Data Sheet
Distribution of Test data	Within 24 hours of completion of testing of a lot	As per MP 717.04.21	As per MP 717.04.21

