pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STANDARD PROTOCOL (SP-013)
Hot Mix Asphalt Plants

SECTION A. GENERAL REQUIREMENTS

1. Regulatory Authority and General Description

All performance testing shall be conducted in accordance with the provisions of BAQ-GPA/GP-13, 40 CFR Part 60 Subpart I – Standards of Performance for Hot Mix Asphalt Facilities, and other applicable regulatory requirements. As an alternative to a site-specific protocol, Hot Mix Asphalt (HMA) plants that operate under GP-13 that produce asphaltic concrete through batch, continuous mix, counter-flow drum-mix, or drum methods may opt to utilize this SP-013 whose conditions are described herein.

2. Contents

3. Definitions

Words and terms that are not otherwise defined in this Standard Protocol (SP) shall have the meanings set forth in 40 CFR Part 60, Subpart I and BAQ-GPA/GP-13 unless the context indicates otherwise. The meanings set forth in applicable definitions codified in the Code of Federal Regulations (CFR), included in the aforementioned subpart shall also apply to this SP.

Hot Mix Asphalt (HMA) – Asphaltic concrete mixture consisting of virgin stone, asphaltic cement, reclaimed asphalt product (RAP) (if applicable), additives, and other constituents.

Maximum Routine Operating Conditions (MROC) – For the purposes of this SP, the facility is expected to operate at 90.0% or higher of the maximum routine asphalt production rate a plant can achieve while producing a typical HMA mix that includes RAP. Batch plants should test while utilizing the highest typical RAP percentage.

Rated Capacity – Highest asphalt production rate a plant can achieve as determined by the manufacturer.

Non-Methane Hydrocarbons (NMHC) – those total organic compounds (TOC) measured according to the procedure in EPA Method 25A, expressed on an “as propane” (C_3H_8) basis with the subtraction of methane as determined by EPA Method 18.

Non-Methane/Ethane Hydrocarbons (NMNEHC) – those total organic compounds (TOC) measured according to the procedure in EPA Method 25A, expressed on an “as propane” (C_3H_8) basis with the subtraction of methane and ethane as determined by EPA Method 18.

Total Hydrocarbons (THC) – Those TOCs measured according to the procedure in EPA Method 25A, subject to the state additions in Section 10(b), expressed on an "as propane" (C_3H_8) basis. This includes methane and ethane.

4. Applicability/Scope

This Standard Protocol may not be used for sources other than HMA plants, subject to BAQ-GPA/GP-13. Federal subpart 40 CFR Part 60, Subpart I takes precedence over applicable state requirements. The plant should be making a typical HMA product with a final mixture temperature in the upper range of what the plant typically produces.

5. Authorization to Use SP-013

(a) *Notification for Authorization to Use SP-013.* Any facility subject to GP-13 that agrees to meet the requirements of this SP is authorized to use it.

(b) *Terms of Authorization to Use SP-013.* This Standard Protocol authorizes performance testing at the specific facility detailed in the Test Notification for the specified performance test program. DEP's authorization to use this Standard Protocol will expire 6 months from the date of the test notification if the owner or operator fails to commence testing. The expiration of the authorization to use this Standard Protocol will require a new test notification.

(c) *Lapse in Testing.* If there is a lapse in testing, DEP must be notified.

(d) *Transfer of Ownership.* The Authorization to Use this Standard Protocol may be transferred from the owner or operator of a facility.

(e) *Modification, Suspension, or Revocation of SP-013 or Authorizations to Use SP-013.*

(i) DEP may modify, suspend, or revoke and reissue this Standard Protocol.

(ii) This Standard Protocol may be modified, suspended, or revoked if DEP determines that the HMA plant cannot be accurately tested under this Standard Protocol.

(iii) An Authorization to Use SP-013 may be suspended or revoked if DEP determines that, at any time, the owner, operator, and/or their subcontractor(s) has failed to test the source(s) in accordance with the terms and conditions of this Standard Protocol.

(iv) Upon suspension or revocation of an Authorization to Use SP-013, the owner or operator shall immediately cease use of this Standard Protocol.

(v) Failure to strictly adhere to this Standard Protocol will likely result in a rejection of the test results and may lead to a requirement to retest.

6. Applicable Regulations

(a) Applicable federal regulations include the following New Source Performance Standards (NSPS) for HMA plants constructed after June 11, 1973, codified at 40 CFR Part 60 and incorporated by reference in 25 Pa. Code § 122.3.

(i) **40 CFR Part 60 (NSPS), Subpart I** – Standards of Performance for HMA Facilities

(b) Applicable state regulations include, but are not limited to, 25 Pa. Code Chapter 139 Sampling and Testing.

(i) Per 25 Pa. Code Chapter 139.11(1), "[p]erformance tests shall be conducted while the source is operating at maximum routine operating conditions or under such other conditions, within the capacity of the equipment, as may be requested by the Department."

(ii) Batch plants should test while utilizing the highest typical RAP percentage.

(c) General Permit BAQ-GPA/GP-13:

(i) Existing HMA plants constructed after July 1, 1972, but prior to the effective date of GP-13 (02/02/2010) and for which a plan approval was obtained pursuant to 25 Pa. Code 127.11 are subject to GP-13, Section 14(b). Refer to Table 1 in this SP.

(ii) HMA plants constructed after the effective date of GP-13 (02/02/2010) or a plant constructed after July 1, 1972, but prior to the effective date of GP-13 (02/02/2010) and for which no plan approval was obtained pursuant to 25 Pa. Code 127.11 are subject to GP-13, Section 14(c). Refer to Table 2 in this SP.

7. Test Notifications

Any person proposing to use this Standard Protocol at a HMA plant shall submit a test notification at least 30-days in advance, unless otherwise approved by DEP. DEP will respond if the notification is inadequate.

Acceptance of all testing is contingent upon the review of, and conformance to, the information in the FAQs,: https://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/SourceTesting/Pages/default.aspx. Failure to obtain DEP approval may result in rejection of test results and possible enforcement action. Final acceptance of the test results is also contingent upon fulfillment of all the applicable requirements specified in the most current version of DEP's Source Testing Manual.

Postponement or stoppage of a scheduled performance test must be immediately communicated to the Source Testing Section contact for asphalt plants and applicable Regional Office. A thorough and complete justification in writing via email of the postponement or stoppage must be provided. This would include all preliminary or pretesting, if conducted, that was used in making the decision to postpone or stop.

8. Recordkeeping Requirements

The process parameters listed in Table 3. Process Data Summary (see Section 10. Reporting Requirements) must be monitored and recorded every 15-minutes during performance testing. If a parameter is not applicable, "N/A" must be entered into Table 3.

Quality assurance conducted for the performance testing program must include the following, at a minimum: (1) maximum routine operating condition (MROC, in terms of tons of asphalt production per hour (TPH)); (2) date and name of the servicing company and technician that performed the most recent burner tuning; (3) EPA Methods 3, 7E, 10, 18, and 25A analyzer response time, calibrations, calibration error, drift checks, and bias check (as applicable); (4) calibration gas certificates; (5) sampling system (15-minute interval) temperature checks.

9. Reporting Requirements

(a) The test report must conform to (1) the requirements in the Source Test Reports section of the current version of DEP's Source Testing Manual (Revision 3.3, November 2000), located at: https://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/SourceTesting/Pages/default.aspx, and (2) this Standard Protocol.

(b) For test report submittals, refer to the current information in the Source Testing FAQs: https://www.dep.pa.gov/Business/Air/BAQ/BusinessTopics/SourceTesting/Pages/default.aspx;

(c) The test report must contain all data collected from the HMA plant relating to the performance testing program, such as pre-compliance, preliminary, and informational testing in preparation of the performance test.

(d) If DEP develops a document on the preparation of emission test reports, the submitted report should be formatted as specified in that document. Until then, the submitted report should be formatted as specified in EPA Emission Measurement Center Guideline Document (GD-043) Preparation and Review of Emission Test Reports (December 1998): https://www.epa.gov/sites/default/files/2020-08/documents/gd-043.pdf

(e) Reported test results must be rounded to two or three significant figures. See EPA Emission Measurement Center Technical Information Document (TID-024) Memo on Rounding and Significant Figures (June 6, 1990), located at: https://www.epa.gov/emc/technical-information-document-024-memo-rounding-and-significant-figures

(f) In accordance with 40 CFR §§ 60.4 and 63.10, copies of all test notifications, reports, and other communications shall also be submitted to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI) accessible at https://cdx.epa.gov

(g) The following tables (see Section 7(c) for applicability) must appear in the test report. Total hydrocarbons may be replaced with non-methane hydrocarbons or non-methane ethane hydrocarbons if methane and/or ethane is subtracted:

Table 1. Source Name (Process/Control Source ID Numbers) Test Results Summary (TRS)

Run No.	1	2	3	**Average**	**Standard**	**Compliance Status Pass/Fail**
Test Date						
Flow [dscfm]						
Asphalt Production [TPH]						
Asphalt Production [%MROC]					**90.0**	
Filterable PM [gr./dscf] [lbs./hour]					**≤0.016**	
Nitrogen Oxides [ppmvd] [ppmvd @ 15% O_2] [lbs./hour]					**≤85**	
Total Hydrocarbons[1] [ppmvd] [ppmvd @ 15% O_2] [lbs./hour]					**≤60.**	
Carbon Monoxide [ppmvd] [ppmvd @ 15% O_2] [lbs./hour]					**≤350.**	
Visible Emissions[2] [Average %] [Highest %]					**≤10.**	

1. Total Hydrocarbons on a propane basis.
2. EPA Method 9 readings must be conducted at the same time as particulate matter sampling. Opacity may not be equal to or greater than 10% at any time.

Table 2. Source Name (Process/Control Source ID Numbers) Test Results Summary (TRS)

Run No.	1	2	3	**Average**	**Standard**	**Compliance Status Pass/Fail**
Test Date						
Flow [dscfm]						
Asphalt Production [TPH]						
Asphalt Production [%MROC]					**90.0**	
Filterable PM [gr./dscf] [lbs./hour]					**≤0.0090**	
Condensable PM [gr./dscf] [lbs./hour]						
Total PM-10[1] [gr./dscf] [lbs./hour]					**≤0.021**	
Nitrogen Oxides [ppmvd] [ppmvd @ 15% O_2] [lbs./hour]					**≤60.**	
Total Hydrocarbons[2] [ppmvd] [ppmvd @ 15% O_2] [lbs./hour]					**≤30.**	
Carbon Monoxide [ppmvd] [ppmvd @ 15% O_2] [lbs./hour]					**≤200.**	
Visible Emissions[3] [Highest %]					**0**	

1. Sum of filterable PM and condensable PM.
2. Total Hydrocarbons on a propane basis.
3. EPA Method 9 or EPA Method 22 readings. There shall be no visible emissions from the exhaust of the baghouse.

Table 3. Source Name (Process/Control Source ID Numbers) Process Data Summary

Run No.	1	2	3	**Averages**
Test Date				
Mix Type				
Fuel Type				
Fuel Usage [gpm or cfm]				
Burner Intensity [%]				
RAP [%]				
Fines in Mix [%]				
RAP Asphaltic Oil [%]				
Virgin Asphaltic Oil [%]				
Other Additives [%][1]				
Mix Temperature [°F]				
Aggregate Temperature [°F]				
Baghouse ΔP [inches of H_2O]				

1. List additives, such as water, plastic, shingles, etc., individually.
2. If a parameter is not applicable, “N/A” must be entered into Table 3.

Table 4. Source Name (Source ID Number) Methods 3A/7E/10 Calibration Summary[1]

Pollutants	Cv	Cdir	ACE	Allowable ACE	Pass (Yes/No)
Oxygen Low (or Zero) Mid High Span Value					
Carbon Dioxide Low (or Zero) Mid High Span Value					
Nitrogen Oxide Low (or Zero) Mid High Span Value					
Carbon Monoxide Low (or Zero) Mid High Span Value					

1. All quality assurance documentation and calculations for the performance test must be included in the test report to provide evidence that the process and testing data is accurate and representative of actual testing conditions.

Table 5. Source Name (Source ID Number) Method 25A Calibration Summary[1]

Pollutants	Cv	Csys	Expected	ACE	Allowable ACE	Pass (Yes/No)
Total Hydrocarbon Zero Low Mid High Span	 NA	 	 NA NA NA	 	 ±5% ±5% 	

1. All quality assurance documentation and calculations for the performance test must be included in the test report to provide evidence that the process and testing data is accurate and representative of actual testing conditions.

Table 6. Source Name (Source ID Number) QA Summary[1]

Run No.	1	2	3	**Standard**	**Pass** (Yes/No)
Test Date					
Oxygen					
Span (%)					
Low Bias (% of span)				±5	
Upscale Bias (% of span)				±5	
Low Drift (% of span)				±3	
Upscale Drift (% of span)				±3	
Carbon Dioxide					
Span (%)					
Low Bias (% of span)				±5	
Upscale Bias (% of span)				±5	
Low Drift (% of span)				±3	
Upscale Drift (% of span)				±3	
Nitrogen Oxides					
Span (ppm)					
Low Bias (% of span)				±5	
Upscale Bias (% of span)				±5	
Low Drift (% of span)				±3	
Upscale Drift (% of span)				±3	
Carbon Monoxide					
Span (ppm)					
Low Bias (% of span)				±5	
Upscale Bias (% of span)				±5	
Low Drift (% of span)				±3	
Upscale Drift (% of span)				±3	
Total Hydrocarbons					
Span (ppm)					
Zero Drift (% of span)				±3	
Upscale Drift (% of span)				±3	

1. All quality assurance documentation and calculations for the performance test must be included in the test report to provide evidence that the process and testing data is accurate and representative of actual testing conditions.

10. Source Testing Requirements

(a) Federal Requirements – All performance testing shall be in accordance with EPA Methods 1-4, 5, 7E, 9, 10, 18, 22, 25A, and 202, as applicable.

(b) State Requirements – Specific State requirements and common reminders are as follows:

(i) EPA Method 1: Cyclonic flow checks must be conducted and recorded at each testing location. Checks must take place at each traverse point and be consistent with conditions during testing. All sampling ports, meeting EPA Method 1 criteria for spacing, must be accessible. Additionally, all sampling ports must remain stuffed/blocked during all testing activities.

(ii) EPA Method 2: Pitot tube openings must be of proper shape and undamaged. A damaged pitot will void all volumetric flow and mass emission rate data.

(iii) EPA Method 5: Acetone rinses of 200 mLs or 30 mLs per foot of sample probe length, whichever is greater, are required and must be documented in the test report. Nozzles and probe liners must be glass. A minimum of 50 dscf per test run must be collected.

(iv) EPA Method 7E: A NO_2 converter efficiency test must be conducted and recorded for each test program but is recommended to be conducted at least daily. A stratification test is required to be conducted and recorded prior to testing.

(v) EPA Method 18 Bag Sampling: The recovery study (§7.6.2 of EPA Method 18) is not required for methane provided the sample is analyzed within 48 hours.

(vi) EPA Method 25A: All components of the sampling system (sample probe, sample line, and analyzer, at a minimum) must be heated to at least 350°F. Backflush analyzers (ALT-106) are not approved for this source category for non-methane hydrocarbon determination. They may be utilized using EPA Method 18 direct interface to determine the methane concentration, if desired. A blended gas to demonstrate proper separation of methane/ethane and non-methane/ethane compounds is required, as specified in 40 CFR 1065.365, if GC backflush or methane cutter technologies are used. All calibrations and quality control checks must be through the entire sampling system. The THC results will likely be rejected if the instrument span is not 1.5-2.5 times the actual emission concentration, measured during testing. However, a THC span of 10 ppm is **required** and must be used when the average concentration is ≤ 4 ppm.

(vii) EPA Method 7E and 10 average concentrations must be 20-100% of the span. A NO_x and CO outlet span of 10 ppm is **required** and must be used when the average concentration during any test run is <2 ppm, but should be used when the average run concentrations are ≤ 10 ppm. (i.e. Acceptable NOx Conc. Ranges = Span 20 ppm x 0.2 (or 20%) and 1.0 (100%) = 4-20 ppm.)

(viii) All gases must be prepared in accordance with EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards, when commercially available.