

01/05/2009, Page 17, Section III (D) (2) IA-Comparative Sample Results Evaluation: Delete the second bulletined statement and replace with the following:

Set of IA results - all the IA test results for one grade of PGAB during the inspection interval of twice per year as described in this section.

01/05/2009, Page 15, Section III (D) (1) Comparative Sampling for IA: Delete sentence three of paragraph one and replace with the following:

In accordance with AASHTO T-40, Sampling Bituminous Materials, except that samples may be taken from a single valve near the bottom of the tank, the Producers' facility's technically competent personnel [as described in their QC Plan] will take Independent Assurance (IA) comparison samples of PGAB at the rate of two – 1 quart comparative samples at random twice each year of each PGAB grade produced or supplied.

11/03/2008, Page 5, Section III (A), Producer's QC: Delete sentence three of paragraph one and replace with the following:

Upon acceptance into this program, the Producer's technically competent sampling personnel will be evaluated and inspected on sampling procedures by NCDOT initially and then subsequent 36 month intervals.

10/17/06, Page 49, Appendix III: NCDOT Section 1020: Remove the existing web address and replace with the following:

http://www.ncdot.org/doh/preconstruct/ps/specifications/specifications_provisions.html

10/17/06, Page 21, Appendix I: Example Model Performance Graded Binder Quality Control Plan: Remove the existing web address and replace with the following:

<http://www.ncdot.org/doh/operations/materials/chemical/others.html>

10/17/06, Page 12-13, Section III (C) (4), Table 2 – Acceptance Limits of QC-QA Samples – All Producers : Remove the existing web address and replace with the following:

<http://www.ncdot.org/doh/operations/materials/chemical/others.html>

9/11/06, Page 12-13, Section III (C) (4), Table 2 – Acceptance Limits of QC-QA Samples – All Producers : Remove the existing Table 2 body, except Notes, and reference the Department's website for this section:

The new Table 2 – Acceptance Limits of QC-QA Samples – All Producers reads as follows: “See the website for the latest updates: <http://www.ncdot.org/doh/construction/materials/chemical/others.html>
NOTE: In Quality Control/Quality Assurance Information click on the title PGAB QC/QA Program Table 2 Acceptance Limits.”

9/11/06, Page 10-11, Section III (C) (1), Verification Sampling by QA Personnel: Add the following verbiage to the second sentence:

“...but it should never be used as a required QC sample as it is not taken at random.” This will form the complete sentence, “The Producer may draw a sample at the same time as a duplicate to hold for possible future testing, but it should never be used as a required QC sample as it is not taken at random.”

9/6/06, Page 12 Section III (C) (3), QC Sample and QA Verification Sample Results Evaluation: Add the following verbiage to the second sentence after bullet four (Last sentence in (3)):

“...provided that there are enough data points for NCDOT to achieve a sound statistical analysis.” This will form the complete sentence, “After three consecutive two-month intervals of acceptable results with no internal or DOT/Producer investigations pending, the QA verification sample frequency may be reduced to a minimum of once per six months, provided that there are enough data points for NCDOT to achieve a sound statistical analysis.

9/6/06, Page 10, Section III (C) (1), Verification Sampling by QA Personnel: Delete sentence two with no replacement. This subject is covered in Section III (C) (3).

“After three consecutive two-month intervals of acceptable results with no internal or DOT/Producer investigations pending, the QA verification sample frequency may be reduced to a minimum of once per six months.”

9/6/06, Page 5, Section III (A), Producer’s QC: Insert the following sentence after between the fourth and last sentence:

“In the event Producer’s personnel are discharged from duty or leave, the Producer’s shall contact the NCDOT Asphalt Inspector to schedule an evaluation of any new employee hired.”

9/6/06, Page 22, Appendix I: Example Model Performance Graded Binder Quality Control Plan: Remove the existing scanned images and reference the Department’s website for this section:

The new Appendix I reads as follows: “See the website for the latest updates:

<http://www.ncdot.org/doh/construction/materials/chemical/others.html>

NOTE: In Quality Control/Quality Assurance Information click on the title NEAUPG Model Plan. ”

9/6/06, Page 49, Appendix III: NCDOT Section 1020: Remove the existing scanned images and reference the Department’s website for this section:

The new Appendix III reads as follows: “See the website for the latest updates:

http://www.ncdot.org/doh/construction/ps/specifications/specifications_provisions.html Note: Click on the latest Specification book, then the section title, Materials (10).”

8/31/06, Page 19, Section III (D)(4)(a), Deviation from Precision Requirements in Table 3: Delete sentence two and sentence three and replace with the following:

“IANC samples will be retaken by the Producer with NCDOT receiving 4 (FOUR) IA samples. Both parties will repeat testing and if they are in range of method reproducibility limits, results are reported. If the reproducibility is not acceptable from the second set of test results, then a retain from NCDOT will be sent to a mutually acceptable AASHTO accredited laboratory. If the results from the referee (third lab) are not within the reproducibility in Table 3 when compared to the highest and lowest of the three lab values, an investigation will be made to determine the cause of the discrepancy.”

8/31/06, Page 19, Section III (D)(4)(a), Deviation from Precision Requirements in Table 3: Insert the bullet statement below after the sentence, “If the cause is determined to be in the NCDOT’s sampling and testing equipment, the NCDOT will take corrective action.”

- “Responsibility for payment to the third party lab belongs to the Producer unless results show that NCDOT’s results were beyond the reproducibility limits (Table 3).”

Add this statement after the new bulletized statement: “ If the third party’s results indicate failing material from the referee sample, shipments from that batch will be discontinued and/or rejected.”

8/31/06, Page 18-19, Section III (D) (3) (Table 3) Acceptable Range of Two Test Results:

1. Delete 21.1 in the (D2S%)* column and Rotational Viscosity (Pa-s) PG 58-22 row. Replace with 12.1.
2. Delete 29.1 in the (D2S%)* column and Original Binder: G*/sin delta (kPa) row. Replace with 17.0.
3. Delete 31.3 in the (D2S%)* column and RTFO/TFO Residue: G*/sin delta (kPa) row. Replace value with 22.2.
4. Delete 56.1 in the (D2S%)* column and PAV Residue: G*/sin delta (kPa) row. Replace with 40.2.
5. Delete 26.9 in the (D2S%)* column and BBR Creep Stiffness (Mpa) row. Replace with 17.8.
6. Delete 13.0 in the (D2S%)* column and Original Binder: G*/sin delta (kPa) row. Replace with 6.8.

5/1/06, Page 12-13, Section III (C) (4) (Table 2) Acceptance Limits of QC-QA Samples – All Producers:

1. Delete 0.296 and replace with 0.275 in the Rotational Viscosity @ 135 (Pa-s) PG 58-22: row.
2. Delete 0.275 and replace with 0.154 in the Rotational Viscosity @ 135 (Pa-s) PG 58-28: row.
3. Delete 0.329 and replace with 0.274 in the Rotational Viscosity @ 135 (Pa-s) PG 64-22: row.
4. Delete 0.420 and replace with 0.293 in the Rotational Viscosity @ 135 (Pa-s) PG 70-22: row.
5. Delete 0.667 and replace with 0.532 in the Rotational Viscosity @ 135 (Pa-s) PG 70-28: row.
6. Delete 1.074 and replace with 0.654 in the Rotational Viscosity @ 135 (Pa-s) PG 76-22: row.
7. Delete 1.65 and replace with 1.77 in the Original Binder: G*/sin delta (kPa) PG 58-22: row.

8. Delete 1.86 and replace with 2.15 in the Original Binder: G*/sin delta (kPa) PG 58-28: row.
9. Delete 2.14 and replace with 2.41 in the Original Binder: G*/sin delta (kPa) PG 64-22: row.
10. Delete 1.85 and replace with 2.03 in the Original Binder: G*/sin delta (kPa) PG 70-22: row.
11. Delete 2.09 and replace with 2.30 in the Original Binder: G*/sin delta (kPa) PG 70-28: row.
12. Delete 1.99 and replace with 2.22 in the Original Binder: G*/sin delta (kPa) PG 76-22: row.
13. Delete 4.27 and replace with 4.72 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 58-22: row.
14. Delete 4.96 and replace with 6.00 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 58-28: row.
15. Delete 5.81 and replace with 6.82 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 64-22: row.
16. Delete 4.56 and replace with 5.50 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 70-22: row.
17. Delete 5.00 and replace with 5.84 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 70-28: row.
18. Delete 1268 and replace with 1187 in the PAV Residue: G* sin delta (kPa) PG 58-22: row.
19. Delete 1512 and replace with 789 in the PAV Residue: G* sin delta (kPa) PG 58-28: row.
20. Delete 1576 and replace with 1004 in the PAV Residue: G* sin delta (kPa) PG 64-22: row.
21. Delete 1313 and replace with 732 in the PAV Residue: G* sin delta (kPa) PG 70-22: row.
22. Delete 405 and replace with 40 in the PAV Residue: G* sin delta (kPa) PG 70-28: row.
23. Delete 515 and replace with 153 in the PAV Residue: G* sin delta (kPa) PG 76-22: row.
24. Delete 109 and replace with 71 in the BBR Creep Stiffness (MPa) PG 58-28: row.
25. Delete 84 and replace with 56 in the BBR Creep Stiffness (MPa) PG 64-22: row.
26. Delete 92 and replace with 37 in the BBR Creep Stiffness (MPa) PG 70-22: row.
27. Delete 56 and replace with 30 in the BBR Creep Stiffness (MPa) PG 70-28: row.
28. Delete 0.444 and replace with 0.453 in the BBR Slope -m value PG 58-22: row.
29. Delete 0.391 and replace with 0.410 in the BBR Slope -m value PG 58-28: row.
30. Delete 0.393 and replace with 0.406 in the BBR Slope -m value PG 64-22: row.
31. Delete 0.360 and replace with 0.374 in the BBR Slope -m value PG 70-22: row.
32. Delete 0.361 and replace with 0.365 in the BBR Slope -m value PG 70-28: row.
33. Delete 0.390 and replace with 0.402 in the BBR Slope -m value PG 76-22: row.
34. Delete 4.16 and replace with 5.06 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 76-22: row.
35. Delete 57 and replace with 54 in the BBR Creep Stiffness (MPa) PG 58-22: row.
36. Delete 70 and replace with 40 in the BBR Creep Stiffness (MPa) PG 76-22: row.

<u>NEW TABLE 2</u>		<i>**Acceptance Limits of QC-QA Samples – All Producers</i>	
Condition:	** PG Grade Acceptance Limits	Test Method Reference:	
Rotational Viscosity @ 135 (Pa-s)	PG 58-22: 0.275-3.00	AASHTO T 316	
	PG 58-28: 0.154-3.00		
	PG 64-22: 0.274-3.00		
	PG 70-22: 0.293-3.00		
	PG 70-28: 0.532-3.00		
	PG 76-22: 0.654-3.00		
Original Binder: G*/sin delta (kPa)	PG 58-22: 1.00-1.77	AASHTO T 315	
	PG 58-28: 1.00-2.15		
	PG 64-22: 1.00-2.41		
	PG 70-22: 1.00-2.03		
	PG 70-28: 1.00-2.30		
	PG 76-22: 1.00-2.22		
RTFO/TFO Residue: G*/sin delta (kPa)	PG 58-22: 2.20-4.72	AASHTO T 315	
	PG 58-28: 2.20-6.00		
	PG 64-22: 2.20-6.82		
	PG 70-22: 2.20-5.50		

	PG 70-28: 2.20-5.84	
	PG 76-22: 2.20-5.06	
PAV Residue: G*sin delta (kPa)	PG 58-22: 1187-5000	AASHTO T 315
	PG 58-28: 789-5000	
	PG 64-22: 1004-5000	
	PG 70-22: 732-5000	
	PG 70-28: 40-5000	
	PG 76-22: 153-5000	
BBR Creep Stiffness (MPa)	PG 58-22: 54-300	AASHTO T 313
	PG 58-28: 71-300	
	PG 64-22: 56-300	
	PG 70-22: 37-300	
	PG 70-28: 30-300	
	PG 76-22: 40-300	
BBR Slope -m value	PG 58-22: 0.300-0.453	AASHTO T 313
	PG 58-28: 0.300-0.410	
	PG 64-22: 0.300-0.406	
	PG 70-22: 0.300-0.374	
	PG 70-28: 0.300-0.365	
	PG 76-22: 0.300-0.402	

7/8/05, page 69, Required Signatures: Delete this page with no replacement.

7/8/05, page 10 , Section III (B) (2), Retention and Reporting of Data: Delete sentence one of bullet one and replace with the following:

Submission of certified test data to the NCDOT shall also be done by populating the spreadsheet in Appendix XII.

7/8/05, page 10, Section III (C) (1), Verification Sampling by QA Personnel: Delete sentence two of paragraph one and replace with the following:

After three consecutive two-month intervals of acceptable results with no internal or DOT/Producer investigations pending, the QA verification sample frequency may be reduced to a minimum of once per six months.

7/8/05, page 10, Section III (C) (3), QC Sample and QA Verification Sample Results Evaluation: Delete sentence seven of paragraph one and replace with the following:

After three consecutive two-month intervals of acceptable results with no internal or DOT/Producer investigations pending, the QA verification sample frequency may be reduced to a minimum of once per six months

3/15/2005, Page 12-13, Section III (C) (4) (Table 2) Acceptance Limits of QC-QA Samples – All Producers:

1. Delete 0.301 and replace with 0.296 in the Rotational Viscosity @ 135 (Pa-s) PG 58-22: row.
2. Delete 0.308 and replace with 0.275 in the Rotational Viscosity @ 135 (Pa-s) PG 58-28: row.
3. Delete 0.326 and replace with 0.329 in the Rotational Viscosity @ 135 (Pa-s) PG 64-22: row.
4. Delete 0.375 and replace with 0.420 in the Rotational Viscosity @ 135 (Pa-s) PG 70-22: row.
5. Delete 0.624 and replace with 0.667 in the Rotational Viscosity @ 135 (Pa-s) PG 70-28: row.
6. Delete 1.13 and replace with 1.074 in the Rotational Viscosity @ 135 (Pa-s) PG 76-22: row.

7. Delete 1.61 and replace with 1.65 in the Original Binder: G*/sin delta (kPa) PG 58-22: row.
8. Delete 1.84 and replace with 1.86 in the Original Binder: G*/sin delta (kPa) PG 58-28: row.
9. Delete 2.18 and replace with 2.14 in the Original Binder: G*/sin delta (kPa) PG 64-22: row.
10. Delete 1.92 and replace with 1.85 in the Original Binder: G*/sin delta (kPa) PG 70-22: row.
11. Delete 1.99 and replace with 2.09 in the Original Binder: G*/sin delta (kPa) PG 70-28: row.
12. Delete 2.02 and replace with 1.99 in the Original Binder: G*/sin delta (kPa) PG 76-22: row.
13. Delete 4.04 and replace with 4.27 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 58-22: row.
14. Delete 4.92 and replace with 4.96 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 58-28: row.
15. Delete 5.84 and replace with 5.81 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 64-22: row.
16. Delete 4.59 and replace with 4.56 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 70-22: row.
17. Delete 4.16 and replace with 5.00 in the RTFO/TFO Residue: G*/sin delta (kPa) PG 70-28: row.
18. Delete 1289 and replace with 1268 in the PAV Residue: G* sin delta (kPa) PG 58-22: row.
19. Delete 1714 and replace with 1512 in the PAV Residue: G* sin delta (kPa) PG 58-28: row.
20. Delete 1540 and replace with 1576 in the PAV Residue: G* sin delta (kPa) PG 64-22: row.
21. Delete 1345 and replace with 1313 in the PAV Residue: G* sin delta (kPa) PG 70-22: row.
22. Delete 862 and replace with 405 in the PAV Residue: G* sin delta (kPa) PG 70-28: row.
23. Delete 547 and replace with 515 in the PAV Residue: G* sin delta (kPa) PG 76-22: row.
24. Delete 133 and replace with 109 in the BBR Creep Stiffness (MPa) PG 58-28: row.
25. Delete 83 and replace with 84 in the BBR Creep Stiffness (MPa) PG 64-22: row.
26. Delete 97 and replace with 92 in the BBR Creep Stiffness (MPa) PG 70-22: row.
27. Delete 131 and replace with 56 in the BBR Creep Stiffness (MPa) PG 70-28: row.
28. Delete 0.441 and replace with 0.444 in the BBR Slope -m value PG 58-22: row.
29. Delete 0.379 and replace with 0.391 in the BBR Slope -m value PG 58-28: row.
30. Delete 0.395 and replace with 0.393 in the BBR Slope -m value PG 64-22: row.
31. Delete 0.364 and replace with 0.360 in the BBR Slope -m value PG 70-22: row.
32. Delete 0.354 and replace with 0.361 in the BBR Slope -m value PG 70-28: row.
33. Delete 0.394 and replace with 0.390 in the BBR Slope -m value PG 76-22: row.

<u>NEW TABLE 2</u>	**Acceptance Limits of QC-QA Samples – All Producers	
Condition:	** PG Grade Acceptance Limits	Test Method Reference:
Rotational Viscosity @ 135 (Pa-s)	PG 58-22: 0.296-3.00	AASHTO T 316
	PG 58-28: 0.275-3.00	
	PG 64-22: 0.329-3.00	
	PG 70-22: 0.420-3.00	
	PG 70-28: 0.667-3.00	
	PG 76-22: 1.074-3.00	
Original Binder: G*/sin delta (kPa)	PG 58-22: 1.00-1.65	AASHTO T 315
	PG 58-28: 1.00-1.86	
	PG 64-22: 1.00-2.14	
	PG 70-22: 1.00-1.85	
	PG 70-28: 1.00-2.09	
	PG 76-22: 1.00-1.99	
RTFO/TFO Residue: G*/sin delta (kPa)	PG 58-22: 2.20-4.27	AASHTO T 315
	PG 58-28: 2.20-4.96	
	PG 64-22: 2.20-5.81	
	PG 70-22: 2.20-4.56	
	PG 70-28: 2.20-5.00	

	PG 76-22: 2.20-4.16	
PAV Residue: G* $\sin \delta$ (kPa)	PG 58-22: 1268-5000	AASHTO T 315
	PG 58-28: 1512-5000	
	PG 64-22: 1576-5000	
	PG 70-22: 1313-5000	
	PG 70-28: 405-5000	
	PG 76-22: 515-5000	
BBR Creep Stiffness (MPa)	PG 58-22: 57-300	AASHTO T 313
	PG 58-28: 109-300	
	PG 64-22: 84-300	
	PG 70-22: 92-300	
	PG 70-28: 56-300	
	PG 76-22: 70-300	
BBR Slope -m value	PG 58-22: 0.300-0.444	AASHTO T 313
	PG 58-28: 0.300-0.391	
	PG 64-22: 0.300-0.393	
	PG 70-22: 0.300-0.360	
	PG 70-28: 0.300-0.361	
	PG 76-22: 0.300-0.390	

10/27/2004, Page 4, Section III (A) Producer's QC: Delete sentence two of paragraph one and replace with the following:

Materials will be sampled in accordance with AASHTO T-40, Sampling Bituminous Materials, except that samples may be taken from a single valve near the bottom of the tank.

10/27/04, Page 5, Section III (A) (1) Sampling for QC: Delete sentence two of paragraph one and replace with the following:

In accordance with AASHTO T-40, Sampling Bituminous Materials, except that samples may be taken from a single valve near the bottom of the tank, the Producers' facility's technically competent personnel [as described in their QC plan] will take two-1 quart samples in a appropriate sealed container of each batch and PGAB grade available on any given day.

10/27/04, Page 10, Section III (C) Quality Assurance (QA) Verification Sample Testing: Delete sentence two of paragraph one and replace with the following:

Materials will be sampled in accordance with AASHTO T-40, Sampling Bituminous Materials, except that samples may be taken from a single valve near the bottom of the tank.

10/27/04, Page 10, Section III (C) (1) Verification Sampling by QA Personnel: Delete sentence one of paragraph one and replace with the following:

In accordance with AASHTO T-40, Sampling Bituminous Materials, except that samples may be taken from a single valve near the bottom of the tank, the NCDOT shall take verification samples, random and independent of QC samples, of PGAB at the rate of one – 1 quart samples at random once each two months or 20,000 tons (4,620,000 gallons) per grade per lot whichever is less until three consecutive results comply with the program requirements.

10/27/04, Page 16, Section III (D) (1) Comparative Sampling for IA: Delete sentence three of paragraph one and replace with the following:

In accordance with AASHTO T-40, Sampling Bituminous Materials, except that samples may be taken from a single valve near the bottom of the tank, the Producers' facility's technically competent personnel [as described in their QC Plan] will take Independent Assurance (IA) comparison samples of PGAB at the rate of two – 1 quart comparative samples at random once each year of each PGAB grade produced or supplied.

10/27/04, Page 58, Appendix VII: QC and QA Verification Test Report Forms: Delete letter F and its contents.

Correct the lettered list.

10/27/04, Page 59, Appendix VII: QC and QA Verification Test Report Forms: Delete letter R. and replace with the following:

R. Technician's name.

Note: Then correct the lettered list.

10/27/04, Page 12, Table 2-Acceptance Limits of QC-QA Samples – All Producers: Delete the contents of the table row, RTFO/TFO Residue: $G^*/\sin \delta$ (kPa), PG 70-28: 2.59-4.51, and replace with the following:

PG 70-28: 2.20-4.51

10/27/04, Page 12, Table 2-Acceptance Limits of QC-QA Samples – All Producers: Delete the contents of the table row, RTFO/TFO Residue: $G^*/\sin \delta$ (kPa), PG 76-22: 2.33-4.16, and replace with the following:

PG 76-22: 2.20-4.16

10/27/04, Page 19, Section D (4) (a), Deviation from Precision Requirement in Table 3: Delete the sentence two of paragraph one and replace with the following:

IANC samples will be retaken and both parties will repeat testing and if they are then in range of method deviation limits the results are reported.

10/27/04, Page 61, Appendix VIII (II), Requirements for Producer Sampling Log and Lab Report: Correct the numbered list.

10/27/04, Page 63, Appendix X: Producer Acceptance Limits for PGAB Test Methods: Delete the numbers under the Results header in row 1, 4, 6, 7, 9, and 12 and replace with the following:

3.00, 1.00, 2.20, 5000, 300, 0.300.