

PERFORMANCE EXAM CHECKLIST

**TOTAL EVAPORABLE MOISTURE CONTENT OF AGGREGATE BY DRYING
FOP FOR AASHTO T 255**

**LABORATORY DETERMINATION OF MOISTURE CONTENT OF SOILS
FOP FOR AASHTO T 265**

Participant Name _____ Exam Date _____

Record the symbols "P" for passing or "F" for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. Representative sample of appropriate mass obtained?	_____	_____
2. Mass of container determined to 0.1 g?	_____	_____
3. Sample placed in container and mass determined to 0.1 g?	_____	_____
4. Test sample mass conforms to the required mass?	_____	_____
5. Wet sample mass determined to 0.1 g?	_____	_____
6. Loss of moisture avoided prior to mass determination?	_____	_____
7. Sample dried by a suitable heat source?	_____	_____
8. If aggregate heated by means other than a controlled oven, is sample stirred to avoid localized overheating?	_____	_____
9. For aggregate: Is aggregate heated for the additional, specified time (forced draft, ventilated, convection – 30 minutes; microwave – 2 minutes; other 10 minutes) and then mass determined and compared to previous mass showing less than 0.10 percent loss?	_____	_____
10. For soil: Is soil heated for at least 1hour additional drying time and then mass determined and compared to previous mass - showing less than 0.10 percent loss?	_____	_____
11. Sample cooled, dry mass determined and recorded to the nearest 0.1 percent?	_____	_____
12. Moisture content calculated correctly and recorded to the nearest 0.1 percent?	_____	_____

Comments: First attempt: Pass _____ Fail _____ Second attempt: Pass _____ Fail _____

Examiner Signature _____ WAQTC #: _____

EMBANKMENT AND BASE
IN-PLACE DENSITY

WAQTC

FOP AASHTO T 255/T 265 (16)

PERFORMANCE EXAM CHECKLIST

**ONE-POINT METHOD
FOP FOR AASHTO T 272 (T 99)**

Participant Name _____ Exam Date _____

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. One-point determination of dry density and corresponding moisture content made in accordance with the FOP for AASHTO T 99?	_____	_____
a. Correct size (4.75 mm / No. 4 or 19.0 mm / 3/4 in.) material used?	_____	_____
2. If necessary, sample dried until friable in air or drying apparatus, not exceeding 60°C (140°F)?	_____	_____
3. Sample broken up and an adequate amount sieved over the appropriate sieve (4.75 mm / No. 4 or 19.0 mm / 3/4 in.) to determine oversize (coarse particle) percentage?	_____	_____
4. Sample passing the sieve has appropriate mass?	_____	_____
5. Layer of soil (approximately one third compacted depth) placed in mold with collar attached, loose material lightly tamped?	_____	_____
6. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
7. Material adhering to the inside of the mold trimmed?	_____	_____
8. Layer of soil (approximately two thirds compacted depth) placed in mold with collar attached, loose material lightly tamped?	_____	_____
9. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
10. Material adhering to the inside of the mold trimmed?	_____	_____
11. Mold filled with soil such that compacted soil will be above the mold, loose material lightly tamped?	_____	_____
12. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
13. Collar removed without shearing off sample?	_____	_____
14. Approximately 6 mm (1/4 in.) of compacted material above the top of the mold (without the collar)?	_____	_____
15. Soil trimmed to top of mold with the beveled side of the straightedge?	_____	_____
16. Mass of mold and contents determined to appropriate precision?	_____	_____
17. Wet density calculated from the wet mass?	_____	_____
18. Soil removed from mold using a sample extruder if needed?	_____	_____
19. Soil sliced vertically through center (non-granular material)?	_____	_____
20. Moisture sample removed ensuring all layers are represented?	_____	_____

OVER

Procedure Element	Trial 1	Trial 2
21. Moist mass determined immediately to 0.1 g?	_____	_____
22. Moisture sample mass of correct size?	_____	_____
23. Sample dried and water content determined according to the FOP for T 255/T 265?	_____	_____
24. One-point plotted on family of curves supplied?	_____	_____
25. One-point falls within 80 to 100 percent of optimum moisture content in order to be valid?	_____	_____
26. If one-point does not fall within 80 to 100 percent of optimum moisture content, another one-point determination with an adjusted water content is made?	_____	_____
27. Maximum dry density and corresponding optimum moisture content correctly estimated?	_____	_____

Comments: First attempt: Pass_____Fail_____ Second attempt: Pass_____Fail_____

Examiner Signature _____ WAQTC #: _____

PERFORMANCE EXAM CHECKLIST

ONE-POINT METHOD FOP FOR AASHTO T 272 (T 180)

Participant Name _____ Exam Date _____

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. One-point determination of dry density and corresponding moisture content made in accordance with the FOP for AASHTO T 180?	_____	_____
a. Correct size (4.75 mm / No. 4 or 19.0 mm / 3/4 in.) material used?	_____	_____
2. If necessary, sample dried until friable in air or drying apparatus, not exceeding 60°C (140°F)?	_____	_____
3. Sample broken up and an adequate amount sieved over the appropriate sieve (4.75 mm / No. 4 or 19.0 mm / 3/4 in.) to determine oversize (coarse particle) percentage?	_____	_____
4. Sample passing the sieve has appropriate mass?	_____	_____
5. Mold placed on rigid and stable foundation?	_____	_____
6. Layer of soil (approximately one fifth compacted depth) placed in mold with collar attached, loose material lightly tamped?	_____	_____
7. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
8. Material adhering to the inside of the mold trimmed?	_____	_____
9. Layer of soil (approximately two fifths compacted depth) placed in mold with collar attached, loose material lightly tamped?	_____	_____
10. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
12. Material adhering to the inside of the mold trimmed?	_____	_____
13. Layer of soil (approximately three fifths compacted depth) placed in mold with collar attached, loose material lightly tamped?	_____	_____
14. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
15. Material adhering to the inside of the mold trimmed?	_____	_____
16. Layer of soil (approximately four fifths compacted depth) placed in mold with collar attached, loose material lightly tamped?	_____	_____
17. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
18. Material adhering to the inside of the mold trimmed?	_____	_____

OVER

Procedure Element	Trial 1	Trial 2
19. Mold filled with soil such that compacted soil will be above the mold, loose material lightly tamped?	_____	_____
20. Soil compacted with appropriate number of blows (25 or 56)?	_____	_____
21. Collar removed without shearing off sample?	_____	_____
22. Approximately 6 mm (1/4 in.) of compacted material above the top of the mold (without the collar)?	_____	_____
23. Soil trimmed to top of mold with the beveled side of the straightedge?	_____	_____
26. Mass of mold and contents determined to appropriate precision?	_____	_____
27. Wet density calculated from the wet mass?	_____	_____
28. Soil removed from mold using a sample extruder if needed?	_____	_____
29. Soil sliced vertically through center (non-granular material)?	_____	_____
30. Moisture sample removed ensuring all layers are represented?	_____	_____
31. Moist mass determined immediately to 0.1 g?	_____	_____
32. Moisture sample mass of correct size?	_____	_____
33. Sample dried and water content determined according to the FOP for T 255/T 265?	_____	_____
34. One-point plotted on family of curves supplied?	_____	_____
35. One-point falls within 80 to 100 percent of optimum moisture content in order to be valid?	_____	_____
36. If one-point does not fall within 80 to 100 percent of optimum moisture content, another one-point determination with an adjusted water content is made?	_____	_____
37. Maximum dry density and corresponding optimum moisture content correctly estimated?	_____	_____

Comments: First attempt: Pass_____Fail_____ Second attempt: Pass_____Fail_____

Examiner Signature _____ WAQTC #: _____

PERFORMANCE EXAM CHECKLIST

**IN-PLACE DENSITY AND MOISTURE CONTENT OF SOIL AND SOIL-AGGREGATE BY NUCLEAR METHODS (SHALLOW DEPTH)
FOP FOR AASHTO T 310**

Participant Name _____ Exam Date _____

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. Gauge turned on 10 to 20 minutes before use?	_____	_____
2. Calibration verified?	_____	_____
3. Standard count taken and recorded in accordance with manufacturer’s instructions?	_____	_____
4. Test location selected appropriately 10 m (30 ft.) from other radioactive sources, 3 m (10 ft.) from large objects, 150 mm (6 in.) away from vertical projections?	_____	_____
5. Loose, disturbed material removed?	_____	_____
6. Flat, smooth area prepared?	_____	_____
7. Surface voids filled with native fines (-No. 4) to 3 mm (1/8 in.) maximum thickness?	_____	_____
8. Hole driven 50 mm (2 in.) deeper than probe depth?	_____	_____
9. Gauge placed, probe placed, and source rod lowered without disturbing loose material?	_____	_____
10. Method A:		
a. Gauge firmly seated, and gently pulled back so that the source rod is against the side of the hole toward the scaler / detectors?	_____	_____
b. Two, one-minute reading taken; wet density within 32 kg/m ³ (2.0 lb/ft ³)?	_____	_____
c. Density and moisture data averaged?	_____	_____
11. Method B:		
a. Gauge firmly seated, and gently pulled back so that the source rod is against the side of the hole toward the scaler / detectors?	_____	_____
b. A minimum of a one-minute reading taken; density and moisture data recorded?	_____	_____
c. Gauge turned 90° or 180° (180° in trench)?	_____	_____

OVER

Procedure Element	Trial 1	Trial 2
d. Gauge firmly seated, and gently pulled back so that the source rod is against the side of the hole toward the scaler / detectors?	_____	_____
e. A minimum of a one-minute reading taken; density and moisture data recorded?	_____	_____
f. Wet densities within 50 kg/m ³ (3.0 lb/ft ³)?	_____	_____
g. Density and moisture data averaged?	_____	_____
12. Representative sample (4 kg or 9 lb) obtained from test location?	_____	_____
13. Sample sealed immediately to prevent moisture loss?	_____	_____
14. Moisture content correctly determined using other means than the nuclear density gauge reading?	_____	_____
15. Dry Density calculated using proper moisture content?	_____	_____
16. Percent compaction calculated correctly?	_____	_____

Comments: First attempt: Pass_____Fail_____ Second attempt: Pass_____Fail_____

Examiner Signature _____ WAQTC #: _____

PERFORMANCE EXAM CHECKLIST

**IN-PLACE DENSITY OF ASPHALT MIXTURES BY NUCLEAR METHOD
FOP FOR AASHTO T 355**

Participant Name _____ Exam Date _____

Record the symbols “P” for passing or “F” for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
1. Gauge turned on approximately 10 to 20 minutes before use?	_____	_____
2. Gauge calibrated and standard count recorded?	_____	_____
3. Test location selected appropriately [600 mm (24 in.) from vertical projections or 10 m (30 ft.) from any other radioactive sources]?	_____	_____
4. Procedure:		
a. Filler spread evenly over test site?	_____	_____
b. Excess filler material removed by striking off the surface?	_____	_____
c. Gauge placed on pavement surface and footprint of gauge marked?	_____	_____
d. Probe extended to backscatter position?	_____	_____
e. One-minute count taken; gauge rotated 90°, reseated, and another one-minute count taken?	_____	_____
f. Densities averaged?	_____	_____
g. If difference of the wet densities is greater than 40 kg/m ³ (2.5 lb/ft ³), retest conducted in both directions?	_____	_____
5. Core correlation applied if required?	_____	_____
6. Percent compaction calculated correctly?	_____	_____

Comments: First attempt: Pass _____ Fail _____ Second attempt: Pass _____ Fail _____

Examiner Signature _____ WAQTC #: _____

