PERFORMANCE EXAM CHECKLIST

SAMPLING AGGREGATE PRODUCTS
FOP FOR AASHTO R 90

Participant Name ___________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conveyor Belts – Method A (From the Belt)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Belt stopped?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>2. Sampling template set on belt, avoiding intrusion of adjacent material?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>3. Sample, including all fines, scooped off?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>4. Samples taken in at least three approximately equal increments?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td><strong>Conveyor Belts – Method B (From the Belt Discharge)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sampling device passed through full stream of material twice (once in each direction) as it runs off end of belt?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td><strong>Transport Units</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Unit divided into four quadrants?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>7. Increment obtained from each quadrant, 0.3 m (1ft.) below surface?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>8. Increments combined to make up the sample?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td><strong>Roadways Method A (Berm or Windrow)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Sample taken before spreading?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>10. Full depth of material taken?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>11. Underlying material excluded?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>12. Samples taken in at least three approximately equal increments?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td><strong>Roadways Method B (In-place)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Sample taken after spreading?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>14. Full depth of material taken?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>15. Underlying material excluded?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>16. Samples taken in at least three approximately equal increments?</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

OVER
Stockpile Method A – (Loader sampling)

17. Loader operator directed to enter the stockpile with the bucket at least 150 mm (6 in.) above ground level without contaminating the stockpile? __________ __________

18. First bucketful discarded? __________ __________

19. The loader re-entered the stockpile and obtained a full loader bucket of the material with the bucket tilted back and up? __________ __________

20. A small sampling pile formed at the base of the stockpile by gently rolling the material out of the bucket with the bucket just high enough to permit free-flow of the material? __________ __________

21. A flat surface created by the loader back dragging the small pile? __________ __________

22. Increment sampled from each quadrant by fully inserting the shovel into the flat pile as vertically as possible, care taken to exclude the underlying material? __________ __________

Stockpile Method B (Stockpile Face)

23. Created horizontal surfaces with vertical faces? __________ __________

24. At least one increment taken from each of the top, middle, and bottom thirds of the stockpile. __________ __________

Stockpile Method C – Alternate Tube Method (Fine Aggregate)

25. Outer layer removed? __________ __________

26. Increments taken from at least five locations with a sampling tube? __________ __________

General

27. Increments mixed thoroughly to form sample? __________ __________

Comments: First attempt: Pass____ Fail____ Second attempt: Pass____ Fail____

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Examiner Signature ______________________ WAQTC #: ______________________
PERFORMANCE EXAM CHECKLIST (ORAL)

SAMPLING OF AGGREGATE PRODUCTS
FOP FOR AASHTO R 90

Participant Name ______________________________ Exam Date ______________
Record the symbols “P” for passing or “F” for failing on each step of the checklist.

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How is a sample obtained from a conveyor belt using Method A?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Stop the belt.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>b. Set the sampling template on belt, avoiding intrusion of adjacent material.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>c. All the material is removed from belt including all fines.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>d. Take at least approximately three equal increments.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>2. How is a sample obtained from a conveyor belt using Method B?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Pass the sampling device through a full stream of material as it runs off the end of the belt.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>b. The device must be passed through at least twice (once in each direction).</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>3. How is a sample obtained from a Transport Unit?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Divide the unit into four quadrants.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>b. Dig 0.3 m (1 ft.) below surface.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>c. Obtain an increment from each quadrant.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>4. Describe the procedure for sampling from roadways Method A (Berm or Windrow).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. Sample before spreading</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>b. Sample the material full depth without obtaining underlying material.</td>
<td>____</td>
<td>____</td>
</tr>
<tr>
<td>c. Take at least three approximately equal increments.</td>
<td>____</td>
<td>____</td>
</tr>
</tbody>
</table>

OVER
## Procedure Element

**5. Describe the procedure for sampling from roadway Method B (In-place).**

<table>
<thead>
<tr>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Sample after spreading, before compaction.</td>
<td></td>
</tr>
<tr>
<td>b. Sample the material full depth without obtaining underlying material.</td>
<td></td>
</tr>
<tr>
<td>c. Take at least three approximately equal increments.</td>
<td></td>
</tr>
</tbody>
</table>

**6. Describe the procedure for sampling a stockpile Method A (Loader Sampling).**

<table>
<thead>
<tr>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Loader removes contaminates and creates sampling pile.</td>
<td></td>
</tr>
<tr>
<td>b. Loader back drags pile to create a flat surface.</td>
<td></td>
</tr>
<tr>
<td>c. Divide the flat surface into four quadrants.</td>
<td></td>
</tr>
<tr>
<td>d. Take an approximately equal increment from each quadrant, excluding the underlying material.</td>
<td></td>
</tr>
</tbody>
</table>

**7. Describe the procedure for sampling a stockpile Method B (Stockpile Face Sampling).**

<table>
<thead>
<tr>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Create horizontal surfaces with vertical faces with a shovel.</td>
<td></td>
</tr>
<tr>
<td>b. At least one increment taken from each of the top, middle, and bottom thirds of the stockpile.</td>
<td></td>
</tr>
</tbody>
</table>

**8. Describe the procedure for sampling a stockpile Method C – Alternate Tube Method (Fine Aggregate).**

<table>
<thead>
<tr>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Remove the outer layer of segregated material.</td>
<td></td>
</tr>
<tr>
<td>b. Obtain increments from at least five locations.</td>
<td></td>
</tr>
</tbody>
</table>

**9. After obtaining the increments what should you do before performing R 76?**

<table>
<thead>
<tr>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Increments mixed thoroughly to form sample.</td>
<td></td>
</tr>
</tbody>
</table>

### Comments:

First attempt:   Pass___Fail___ Second attempt:   Pass___Fail___

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Examiner Signature ______________________ WAQTC #: ______________________

18_R90_pr_oral_18 Aggregate 3-14 Pub. October 2019
PERFORMANCE EXAM CHECKLIST

REDUCING FIELD SAMPLES OF AGGREGATES TO TESTING SIZE
FOP FOR AASHTO R 76

Participant Name ______________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
</table>

**Method A - Splitting**

1. Chutes appropriate size and number? _____ _____
2. Material spread uniformly on feeder? _____ _____
3. Rate of feed slow enough so that sample flows freely through chutes? _____ _____
4. Material in one pan re-split until desired mass is obtained? _____ _____

**Method B - Quartering**

1. Sample placed on clean, hard, and level surface? _____ _____
2. Mixed by turning over 4 times with shovel or by pulling sheet horizontally over pile? _____ _____
3. Conical pile formed without loss of material? _____ _____
4. Pile flattened to uniform thickness and diameter? _____ _____
5. Diameter equal to about 4 to 8 times thickness? _____ _____
6. Divided into 4 equal portions with shovel or trowel without loss of material? _____ _____
7. Two diagonally opposite quarters, including all fine material, removed? _____ _____
8. Process continued until desired sample size is obtained when two opposite quarters combined? _____ _____

*The sample may be placed upon a sheet and a stick or pipe may be placed under the sheet to divide the pile into quarters.*

**Comments:**

<table>
<thead>
<tr>
<th>First attempt: Pass_____Fail_____</th>
<th>Second attempt: Pass_____Fail_____</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Examiner Signature ___________________________   WAQTC #:_______________
PERFORMANCE EXAM CHECKLIST

TOTAL MOISTURE CONTENT OF AGGREGATE BY DRYING

FOP FOR AASHTO T 255

Participant Name ______________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Representative sample of appropriate mass obtained?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>2. Mass of container determined to 0.1 percent or 0.1 g?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>3. Sample placed in container and wet mass determined to 0.1 percent or 0.1 g?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>4. Test sample mass conforms to the required mass?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>5. Loss of moisture avoided prior to mass determination?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>6. Sample dried by a suitable heat source?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>7. If aggregate heated by means other than a controlled oven, is sample stirred to avoid localized overheating?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>8. If heated in a microwave, heaped and covered with a ventilated lid</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>9. Is aggregate heated for the additional, specified time?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>a. Forced draft, ventilated, convection ovens – 30 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Microwave – 2 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Other – 10 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Mass determined and compared to previous mass – showing less than 0.10 percent loss?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>11. Sample cooled before dry mass determination to 0.1 percent or 0.1 g?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>12. Calculations performed properly, and results reported to the nearest 0.1 percent?</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

Comments: First attempt: Pass____ Fail____ Second attempt: Pass____ Fail____

Examiner Signature _________________________ WAQTC #:_______________
PERFORMANCE EXAM CHECKLIST

METHOD A
SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES
FOP FOR AASHTO T 27
MATERIALS FINER THAN 75 µm (No. 200) SIEVE IN MINERAL AGGREGATE
BY WASHING
FOP FOR AASHTO T 11

Participant Name ______________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Minimum sample mass meets requirement of Table 1?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>2. Sample dried to a constant mass by FOP for AASHTO T 255?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>3. Sample cooled, and original dry mass of the sample recorded to the nearest 0.1 percent or 0.1 g?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>4. Sample placed in container and covered with water?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>5. Contents of the container vigorously agitated?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>6. Suspension of minus 75 µm (No. 200) achieved?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>7. Wash water poured through nested sieves such as 2 mm (No. 10) and 75 µm (No. 200)?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>8. Operation continued until wash water is reasonably clear?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>9. Material retained on sieves returned to washed sample?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>10. Washed sample dried to a constant mass by FOP for AASHTO T 255?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>11. Washed sample cooled, and dry mass recorded to the nearest 0.1 percent or 0.1 g?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>12. Sample placed in nest of sieves specified? (Additional sieves may be used to prevent overloading as allowed in FOP.)</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>13. Material sieved in verified mechanical shaker for proper time?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>14. Mass of material on each sieve and pan recorded to 0.1 g?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>15. Total mass of material after sieving agrees with mass before sieving to within 0.3 percent (check sum)?</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

OVER
### Procedure Element

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Percentages calculated to the nearest 0.1 percent and reported to the nearest whole number, except 75 µm (No. 200) which is reported to the nearest 0.1 percent?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>17. Percentage calculations based on original dry mass of the sample?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>18. Calculations performed properly?</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

**Comments:**
- First attempt: Pass Fail
- Second attempt: Pass Fail

---

**Examiner Signature** ____________________________  **WAQTC #:**________________________

---
PERFORMANCE EXAM CHECKLIST

METHOD B
SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES
FOP FOR AASHTO T 27
MATERIALS FINER THAN 75 µm (No. 200) SIEVE IN MINERAL AGGREGATE
BY WASHING
FOP FOR AASHTO T 11

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Minimum sample mass meets requirement of Table 1?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>2. Sample dried to a constant mass by FOP for AASHTO T 255?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>3. Sample cooled, and original dry mass of the sample recorded to the nearest 0.1 percent or 0.1 g?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>4. Sample placed in container and covered with water?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>5. Contents of the container vigorously agitated?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>6. Suspension of minus 75 µm (No. 200) achieved?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>7. Wash water poured through nested sieves such as 2 mm (No. 10) and 75 µm (No. 200)?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>8. Operation continued until wash water is reasonably clear?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>9. Material retained on sieves returned to washed sample?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>10. Washed sample dried to a constant mass by FOP for AASHTO T 255?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>11. Washed sample cooled, and dry mass recorded to nearest 0.1 percent or 0.1 g?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>12. Sample placed in nest of sieves specified? (Additional sieves may be used to prevent overloading as allowed in FOP.)</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>13. Material sieved in verified mechanical shaker for proper time?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>14. Mass of material on each sieve and pan determined to the nearest 0.1 percent or 0.1 g?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>15. Total mass of material after sieving agrees with mass before sieving to within 0.3 percent (coarse check sum)?</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

OVER
<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Material in pan reduced in accordance with FOP for AASHTO R 76 to at least 500 g?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>17. Mass of minus 4.75 mm (No. 4) split recorded to the nearest 0.1 g?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>18. Sample placed in nest of sieves specified? (Additional sieves may be used to prevent overloading as allowed in FOP.)</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>19. Material sieved in verified mechanical shaker for proper time?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>20. Mass of material on each sieve and pan recorded to the nearest percent or 0.1 g?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>21. Total mass of material after sieving agrees with mass before sieving to within 0.3 percent (fine check sum)?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>22. Percentages calculated to the nearest 0.1 percent and reported to the nearest whole number, except 75 µm (No.200) which is reported to the nearest 0.1 percent?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>23. Percentage calculations based on original dry mass of the sample?</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>24. Calculations performed properly?</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

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

Examiner Signature ____________________________ WAQTC #:_______________
PERFORMANCE EXAM CHECKLIST

METHOD C
SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES
FOP FOR AASHTO T 27
MATERIALS FINER THAN 75 µm (No. 200) SIEVE IN MINERAL AGGREGATE
BY WASHING
FOP FOR AASHTO T 11

Participant Name ______________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Minimum sample mass meets requirement of Table 1?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sample dried to a constant mass by FOP for AASHTO T 255?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Sample cooled, and original dry mass of the sample recorded to the nearest 0.1 percent or 0.1 g?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Material aggregations and clay lumps, silt, or adhering fines broken up?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sample placed in nest of sieves specified? (Additional sieves may be used to prevent overloading as allowed in FOP.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Material sieved in verified mechanical shaker for proper time?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Mass of material on each sieve and in pan determined to the nearest 0.1 percent or 0.1 g?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Complete separation of coarse and fine particles achieved?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Total mass of material after sieving agrees with original dry mass of sample to within 0.3 percent (coarse check sum)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Material in pan reduced to test size for washing in accordance with FOP for AASHTO R 76?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Mass of the minus 4.75 mm (No. 4) split sample recorded to the nearest 0.1 g?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Test sample placed in container and covered with water?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Contents of the container vigorously agitated?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Suspension of minus 75 µm (No. 200) achieved?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OVER
### Procedure Element

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Wash water poured through a set of nested sieves, such as a 2.0 mm (No. 10) over the 75 µm (No. 200)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Operation continued until wash water is reasonably clear?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Material retained on sieves returned to washed sample?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Washed test sample dried to a constant mass in accordance with FOP for AASHTO T 255?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Washed test sample cooled, and dry mass recorded to the nearest 0.1 g?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Test sample placed in nest of sieves specified? (Additional sieves may be used to prevent overloading as allowed in FOP.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. Material sieved in verified mechanical shaker for proper time?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. Mass of material on each sieve and in pan determined to nearest 0.1 g?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Total mass of material after sieving agrees with mass after washing to within 0.3 percent (fine check sum)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. Percentages calculated to the nearest 0.1 percent and reported to the nearest whole number, except 75 µm (No. 200) which is reported to the nearest 0.1 percent?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25. Calculations performed, and results reported properly?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26. Percentage calculations based on original dry mass of the sample?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Comments:

First attempt: Pass Fail Second attempt: Pass Fail

Examiner Signature ____________________________ WAQTC #: ______________
## PERFORMANCE EXAM CHECKLIST

### DETERMINING THE PERCENTAGE OF FRACTURE IN COARSE AGGREGATE FOP FOR AASHTO T 335

Participant Name ______________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sample properly sieved through specified sieve(s)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sample reduced to correct size?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Sample dried and cooled, if necessary?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Particles separated into fractured, unfractured, and questionable categories?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Dry mass of each category determined to nearest 0.1 g?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Questionable category resorted if more than 15 percent of total mass falls in that category?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Fracture calculation performed correctly?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Comments: First attempt: Pass____ Fail____ Second attempt: Pass____ Fail____

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Examiner Signature ________________________________ WAQTC #: ______________
PERFORMANCE EXAM CHECKLIST

PLASTIC FINES IN GRADED AGGREGATES AND SOILS BY THE USE OF THE SAND EQUIVALENT TEST
FOP FOR AASHTO T 176

Participant Name ______________________________ Exam Date ______________

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

<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Preparation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Sample passed through 4.75 mm (No. 4) sieve?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>2. Material in clods broken up and re-screened?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>3. Split or quarter 1,000 to 1,500 g of material passing the 4.75 mm (No. 4) sieve?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>NOTE: If necessary, the material may be dampened before splitting to avoid segregation or loss of fines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. No fines lost?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>5. Working solution dated?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>6. Temperature of working solution 22 ±3°C (72 ±5°F)?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>7. Working calcium chloride solution 915 ±25 mm (36 ±1 in) above the work surface?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>8. 101.6 ±2.5 mm (4 ±0.1 in) working calcium chloride solution siphoned into cylinder?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>9. Material checked for moisture condition by tightly squeezing small portion in palm of hand and forming a cast?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>10. Sample at proper water content?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. If too dry (cast crumbles easily) water added, re-mixed, covered, and allowed to stand for at least 15 minutes?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>b. If too wet (shows free water) sample drained, air dried and mixed frequently?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>11. Sample placed on splitting cloth and mixed by alternately lifting each corner of the cloth and pulling it over the sample toward diagonally opposite corner, causing material to be rolled?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>12. Is material thoroughly mixed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When material appears to be homogeneous, mixing finished with sample in a pile near center of cloth?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>14. Fill the 85 mL (3 oz) tin by pushing through base of pile with other hand on opposite side of pile?</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

OVER
<table>
<thead>
<tr>
<th>Procedure Element</th>
<th>Trial 1</th>
<th>Trial 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>15. Material fills tin to overflowing?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>16. Material compacted into tin with palm of hand?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>17. Tin struck off level full using spatula or straightedge?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>18. Prepared sample funneled into cylinder with no loss of fines?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>19. Bottom of cylinder tapped sharply on heel of hand several times to release air bubbles?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>20. Wetted sample allowed to stand undisturbed for 10 min. ±1 min.?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>21. Cylinder stoppered and material loosened from bottom by shaking?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>22. Stoppered cylinder placed properly in mechanical shaker and cylinder shaken 45 ±1 seconds?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>23. Following shaking, cylinder set vertical on work surface and stopper removed?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>24. Irrigator tube inserted in cylinder and material rinsed from cylinder walls as irrigator is lowered?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>25. Irrigator tube forced through material to bottom of cylinder by gentle stabbing and twisting action?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>26. Stabbing and twisting motion applied until cylinder filled to 381 mm (15 in.) mark?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>27. Liquid raised and maintained at 381 mm (15 in.) mark while irrigator is being withdrawn?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>28. Liquid at the 381 mm (15 in.) mark?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>29. Contents let stand 20 minutes ±15 seconds?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>30. Timing started immediately after withdrawal of irrigator?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>31. No vibration or disturbance of the sample?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>32. Readings taken at 20 minutes or up to 30 minutes, when a definite line appears?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>33. Clay level correctly read, rounded, and recorded?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>34. Weighted foot assembly lowered into cylinder without hitting mouth of cylinder?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>35. Sand level correctly read, rounded, and recorded?</td>
<td>_____</td>
<td>_____</td>
</tr>
<tr>
<td>36. Calculations performed correctly?</td>
<td>_____</td>
<td>_____</td>
</tr>
</tbody>
</table>

**Comments:**

First attempt: Pass Fail Second attempt: Pass Fail

**Examiner Signature** ____________________________    **WAQTC #:** ________________