INSTRUCTIONS FOR COMPLETING THE TE-45 FORM:

Section 1

1. **SAMPLE ID** - This is a number generated by CMS when sample information is inputted into the system.

2. **TYPE OF INSPECTION** - Typically this will be a *Control Sample* [CTL]; *Independent Assurance Sample* [IAS]; or *Information* [INFO] sample. Other options for type of sample can be found in CMS.

3. **JMF** - This is the *Job Mix Formula* for the mix being used. This should be provided by the Ready Mix producer supplying the concrete. The JMF can be verified by going to the list of Concrete JMF on the web site. This site can be accessed by Clicking on Construction, Materials Management, Information List, and Concrete JMFs. Select the type of concrete. The list is sorted first by sand then by the coarse aggregate.

4. **MATERIAL CODE** - The material code can be determined from the same list as No. 3 above for the class of concrete being used.

5. **CLASS OF CONCRETE** - The class of concrete to be used on any given item should be determined from the plans. Just place the name of the class in this box.

6. **DATE MADE** - this is the date that the concrete is made.

7. **P/S CODE** - is the Producer / Supplier code. In this case, it is the code for the Ready Mixed Concrete company. This number can be found in CMS by going to the PRD screen. When prompted to enter the Producer/Supplier Code, press the <F4> button on the keyboard. In the BEGIN ABBR NAME section, enter the first 3 to 4 letters of the company name and push <tab>. In the END NAME section, enter the first 3 or 4 letters again, but this time press a higher letter in the alphabet for the last letter. <Tab> down the list to the company that you are looking for. The material code is listed here or you can press <Enter> for more information on the plant. There is also an indicator on the right side of the screen to let you know if a plant is active (A) or inactive (I).

8. **CONCRETE PRODUCER** - Enter the name and location of the Ready Mixed Concrete company.

9. **REPRESENTS QUANTITY** - This value is found in the contract documents such as the plans or the proposal.

10. **Personnel ID** - An identification number (Social Security No.) of the inspector performing the test.

11. **DATE SHIPPED** - the day that cylinders are taken from the project to be shipped to the
central or district lab for testing.

12. **PROJECT NO.** - The project number for the project.

13. **PROJECT INDICATOR** - indicate if the concrete is for a project or a Purchase Order.


15. **PLACEMENT LOCATION** - Indicate where the concrete is being placed. Be specific about which lane, etc.

16. **WEATHER** - Can be complete as the concrete placement is taking place. Should be used as a reminder to check the conditions before the placement and throughout the placement in order to determine the evaporation rate.

Section 2

17. **AGGREGATE MOISTURE** - Use this section to calculate the % moisture of the aggregates being used in the concrete mix.

18. **ADMIXTURES** - Indicate the *brand, type and dosage rate* of the admixtures being used. This can be found on the JMF screen will be useful when completing the CMS information.

Section 3

19. **MATERIAL** - Indicate what type, size, class or grade of material that is being used.

20. **MATERIAL CODE** - One place to get this information is on the PCJMF screen in CMS. Material Codes are given in the first column of the list. Make sure that the materials being used are the same as the materials in the JMF.

21. **PROD. / SUPPL. CODE** - The producer supplier code is also on the JMF screen. **Caution:** the P/S code on the JMF for the cementitious material is 04302-01 - State General Materials, **DO NOT USE THESE MATERIAL CODES.** Determine the names and P/S Codes of the actual materials being used. Make sure that the materials being used are certified or approved for use with ODOT.

   a. **CEMENT** - Look on the approved list on the Materials Management web site under S 1028 - Cement Certified List. Make sure to use the code for a MFG PLANT and not a TERMINAL. Location. The MFG PLANT location should be on the Bill of Lading for the cement.

   b. **FLY ASH** - Look on the approved list on the Materials Management web site
under S 1026 - Fly Ash Certification List.

c. **GGBF SLAG** - Acceptable sources of this material can be found in the ISRC screen of CMS. Use material code 37603 for GRADE 100 material and 37604 for GRADE 120 material.

d. **MICRO SILICA** - Acceptable sources of this material can be found in the ISRC screen of CMS. Use material code 37601 for POWDER material and 37601S for SLURRY material.

22. **PRODUCER/SUPPLIER & LOCATION** - Enter the name and location of the material.

23. **SPECIFIC GRAVITY** - The information for the actual (act.) specific gravities can be found on the Office of Materials Management website under Information, Aggregate, Specific Gravities List. The sources are listed in alphabetical order. The desired source name can be quickly found by using the <Find> button (binoculars). Use the SSD values. The Design (dsgn) specific gravity can be found in the Construction and Materials Specification book, Supplemental Specification, Proposal Note or Plan Note for the project.

24. **ABSORPTION** - This information is also on the Specific Gravity list mentioned in 23.

25. **SPECIFIED SSD WEIGHT (1 yd³)** - these weights are taken from 499.03 in the Construction and Materials Specification book, Supplemental Specifications, Proposal Notes or Plan Note for the project. They are also on the JMF. If a contractor-designed mix (QC/QA) is used, these values, along with the design Specific Gravities and Absorptions, can only be found on the JMF.

Section 4

26. **CORRECTED SSD WEIGHT (for Sp. Gr)** - This is the weight of the aggregates adjusted for specific gravity. This is calculated by multiplying the SPECIFIED SSD WEIGHT by the actual SSD specific gravity and dividing by the design specific gravity.

Section 5

27. **AGGREGATE QUANTITIES FOR 1 yd³ BATCH WITH CORRECTIONS FOR MOISTURE** - This form is set up so that the batch weights can be determined 3 times during a placement. Each aggregate used should be adjusted for moisture in the following manner:

a. **CORRECTED SSD DESIGN WEIGHT** - Enter the CORRECTED SSD WEIGHT (A) from section 4 in the first space.

b. **MOIST** = - Enter the aggregate moisture that was determined in section 2.

c. **ABS** = - Enter the aggregate absorption from section 3.
d. The correction factor (B) is calculated using the % moisture and % absorption. The formula is on the table. The formula is basically moving the decimal place 2 places to the left and adding 1.

Example: 4.7% → 1.047

e. **BATCH WEIGHT** - The batch weight is determined by multiplying the corrected SSD weight by the correction factor. It is easiest to think of the correction factor in terms of separate values for the moisture and absorption. The form is set up so that SSD weight is multiplied by the value calculated by the top number and divided by the value calculated from the bottom number.

Example:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1330</td>
<td>4.67</td>
<td>?</td>
</tr>
<tr>
<td>0.74</td>
<td></td>
<td>?</td>
</tr>
</tbody>
</table>


<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1330</td>
<td>1.047</td>
<td>1382</td>
</tr>
<tr>
<td>1.0074</td>
<td></td>
<td>+52</td>
</tr>
</tbody>
</table>

f. **CHANGE TO WATER** - Subtract the SSD design weight from the batch weight to determine the need change to the water. A positive number indicates that there is excess (free) moisture on the aggregate and will contribute to the mix water. If the number is negative, the aggregates are dry and will absorb water from the mix water.

g. Repeat the process for the different aggregates in the mix. Indicate what percent of the total coarse aggregate an aggregate is if the coarse aggregate is blended.

Section 6

28. **TOTAL CHANGE TO WATER BY AGG.** - Sum the CHANGE TO WATERs for all of the aggregates.

Section 7

29. **WATER** - This section determines how much water needs to be added to the mixer after adjusting for water, either provided to, or taken from the mix, from other sources.

a. **W / Cm** - Determine the required Water / Cementitious Ratio (W/Cm) for the contract documents or JMF.

b. **TOTAL WATER** - Sum the weights of all of the cementitious products and multiply by the Water/Cementitious ratio.

c. **AGG. MOISTURE ADJUSTMENT** - Enter the negative of the number in 6. If the aggregates are wet, the number should be negative. If they are dry, the
number should be positive.

d. **WATER IN ADDITIVES** - Water in additive that need to be accounted for in the mix water. This is generally used when the micro silica used is in Slurry form. You would then determine the amount of solid, determine how much is used and how much of the slurry was water.

Example: A slurry mix is used in an HPC 4 mix. 30 lbs of micro silica are needed in each yd$^3$ of concrete. Determine how much slurry is needed and how much water is contributed to the mix if the slurry contains 42% solids (micro silica).

- 30 lbs micro ÷ 42% = 71.4 lbs of slurry
- 71.7 lbs slurry - 30 lbs micro = 41.7 lbs of water added to mix.

e. **WATER ADDED AT MIXER** - Is equal to the TOTAL WATER minus any free moisture or plus any absorbed moisture in the AGG. MOISTURE ADJUSTMENT minus any appreciable WATER IN THE ADDITIVES.

Section 30

30. **BATCH WEIGHT** - fill in the amount of aggregates indicated in section 3; carry over the amount of cementitious material in section 6; and enter the amount in section 7. Multiply those amounts by the size of the loads to determine the specified weights.

Section 31

31. **YIELD - CONSISTENCY - TEST SPECIMENS** - This section is completed as the concrete is being placed and tested as follows:

a. **TIME** - indicate the time that the trucks are being discharged. This should fall within the 60, 90 minute or other limits allowed in the specification.

b. **CONCRETE TEMP** - The concrete temperature should be taken and entered in this section.

c. **STATION** - Specify where the concrete that is being sampled and tested is being placed.

d. **UNIT WT.** - The unit weight is determined by testing the concrete according to ASTM C 29.

e. **BATCH SIZE** - This amount should be established prior to the placement with the Ready Mixed Concrete producer.

f. **TOTAL BATCH WEIGHT** - this information should be available from the batch ticket received on every load of concrete.

g. **YIELD** - The yield is calculated by dividing the Total Batch Weight by the Unit weight to get the total number of cubic feet in the truck and divided again by the batch size to determine the number of cubic feet in a cubic yard.

h. **SLUMP** - Determined from test results

i. **AIR** - Determined from test results

j. **BEAMS** - If a beam is made, indicate the strength result and age in the row of the
truck from which it was taken. A mark may need to be made during the concrete placement as a reminder of which load the sample represents.

k. **CYLINDERS** - If cylinders are taken, indicate the specimen numbers in this area.

32. **TE-45 SUPP** - If more lines are needed than are provided in section 9, a TE 45 Supplement form is available on the web. This is a continuation of section 9 without the need for the other information that is already completed.

The information on this form should be used when entering the required data into CMS.