July 1, 2019

The purpose of this document is to provide additional clarity and guidance to Ready Mix Concrete Producers to facilitate in the approval and documentation for the following categories:

- Aggregate Stockpiles and Admixtures
- Water Submittal in Mix Designs
- Water Sampling for Ready Mix Concrete

**Aggregate Stockpiles and Admixtures:**

Ready Mix Concrete Producers must purchase all stockpile materials and admixtures from the “NCDOT Approved Producers/Suppliers List”. These materials must meet the specifications documented in Sections 1024 and 1014 of the 2018 NCDOT Standard Specifications For Roads And Structures book. The Ready Mix Concrete Producers should monitor the NCDOT approved producers/supplier list for changes and only purchase materials from the approved sources. Monitoring and purchasing from NCDOT approved sources represents the producers’ Quality Control (QC) process for the production of Portland Cement Concrete (Section 1000). The Bill of Lading should be retained as a means for verification. An M&T representative verifies the stockpile materials during a yearly audit or when deemed necessary. Verification is performed by reviewing the on-site Bill of Lading. In addition, the M&T representative collects Quality Assurance (QA) stockpile samples to verify the material is still in compliance with standards for the production of Ready Mix Concrete.

**Water Submittal in Mix Design:**

When submitting concrete mix designs for approval (Form 312U), the Ready Mix Concrete Producer must list the source of water as “CITY” if the water is coming from a Potable Public Water Supply. If the water is coming from a potable well source, the Ready Mix Concrete Producer must list the source of water as “WELL”.

**Water Sampling for Ready Mix Concrete:**

Water is a key component for the production of Ready Mix Concrete. As noted in the 2018 NCDOT Standard Specifications, Section 1024-4 states, “Water used in the production of concrete or grout shall be from wells or public water systems which are suitable for drinking and must meet the criteria listed in Table 1024-2”. Ready Mix Concrete Producers should monitor their water source for changes to ensure the water is “approved”.

It has never been the responsibility of the Materials & Tests Unit (M&T) to sample the water on behalf of the Ready Mix producer to ensure water is in compliance with table 1024-2. As with stockpile materials, the producer should monitor and test their water supply as a part of their QC process for the production of Portland Cement Concrete. The M&T representative collects a Quality Assurance (QA) water sample during a yearly audit or when deemed necessary to verify the water is in compliance with standards for the production of Ready Mix Concrete. The Producer must get their water tested a minimum of once per year.
• **City Water Supply:**

A yearly water analysis report from the municipal/city water supply is an acceptable document for the Ready Mix Concrete Producers source to confirm Department compliance. This report can be requested from the municipality/city. Treat this as the “Bill of Lading” for water. The producer should review the water analysis and ensure the water used in the production of Ready Mix Concrete meets the “Requirement” column listed in Table 1024-2. In addition to the testing done on behalf of the municipal/city, Ready Mix Concrete producers must test (independently) all water from wells and public water supplies from all out of state locations and in the following counties: Beaufort, Bertie, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Gates, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrell and Washington unless the Engineer waives the testing requirements. Water from a municipal water supply in all other NC counties may be accepted by the annual municipal/city water analysis report. This water analysis should be kept and filed onsite with all of the other stockpile Bill of Lading. Water shall be tested for the following properties:

- PH Range 4.5 – 8.5
- Chloride Ion Content 250ppm (maximum)
- Total Solids Content (Residue) 1,000 ppm (maximum)
- Sulfate as SO₄ 1,500ppm (maximum)

• **Well Water Supply:**

If the Ready Mix Concrete Producer is receiving water via another source (i.e. well), the Ready Mix Concrete Producer is responsible for independent testing of the water to ensure Department compliance. Once the testing is complete, the producer will receive a water analysis report. Treat this as the “Bill of Lading” for water. The producer should review the water analysis and ensure the water used in the production of Ready Mix Concrete meets the “Requirement” column listed in Table 1024-2. The water analysis should be kept and filed onsite with all of the other stockpile Bill of Lading. Water shall be tested for the following properties:

- PH Range 4.5 – 8.5
- Chloride Ion Content 250ppm (maximum)
- Total Solids Content (Residue) 1,000 ppm (maximum)
- Sulfate as SO₄ 1,500ppm (maximum)

During the facilities 3rd party inspection, the inspecting engineer will ensure a water analysis report is onsite, current, and meets the criteria listed in Table 1024-2. It is not the responsibility of the inspecting engineer to request/track down a water analysis report. If the water analysis report is not onsite, is not current, or does not meet the required criteria, the inspecting engineer will mark a “fail” on this portion of the M&T checklist addendum. A M&T representative will follow up with the producer.

The M&T representative which conducts the yearly audit will provide the producer with the QA water analysis report (it could take up to 4 weeks). This should be kept onsite and filed with the stockpile bill of lading.

Please share with all those who will benefit.

Please contact your local M&T representative if you have further questions.