



**INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF MATERIALS AND TESTS**

**CERTIFIED AGGREGATE PRODUCER PROGRAM
ITM No. 211-26**

1.0 SCOPE.

- 1.1** This procedure covers the requirements for an aggregate supplier to become a Certified Aggregate Producer.
- 1.2** This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

- 2.1** Documents required by the Program shall be maintained either electronically or hard copies. All required documents shall be readily available and easily accessible to all necessary personnel.

2.2 AASHTO Standards.

- T 11 Materials Finer Than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing
- T 27 Sieve Analysis of Fine and Coarse Aggregates
- T 112 Clay Lumps and Friable Particles in Aggregates

2.3 ASTM Standards

- D5821 Determining the Percentage of Fractured Particles in Coarse Aggregate
- E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

2.4 ITM Standards

- 203 Control Procedures for Classification of Aggregates
- 207 Sampling Stockpiled Aggregates
- 206 Scratch Hardness of Coarse Aggregate Particles
- 210 Class AP Coarse Aggregate
- 212 Acceptance Procedures of Air Cooled Blast Furnace Slag for Leachate Determination
- 219 Acceptance Procedures of Steel Furnace Slag for Deleterious Materials
- 588 Percent Within Limits (PWL)
- 902 Verifying Sieves
- 906 Verifying Mechanical Shakers
- 910 Verifying Balances

- 2.5** Each Plant/Redistribution Terminal shall have the following current documents on file at the location indicated in the Quality Control Plan (QCP):
- 2.5.1** Indiana Department of Transportation Certified Aggregate Producer Program (ITM 211).
 - 2.5.2** Indiana Department of Transportation Standard Specifications. (Includes applicable Supplemental Specifications)
 - 2.5.3** Indiana Quality Assurance Certified Aggregate Technician Training Manual for Producer Technicians.
 - 2.5.4** The QCP for the Certified Plant/Redistribution Terminal.

3.0 TERMINOLOGY.

- 3.1 Terms and Abbreviations.** Definitions for terms and abbreviations will be in accordance with the Department's Standard Specifications, Section 101 and the following:
- 3.2** Addenda. Any addition or deletion to the QCP.
- 3.3** Addenda Summary Sheet. A page of the QCP, located in the Appendix that is used to record a brief description of addenda, other than items on the QCP Annex, until such time that they are incorporated into the QCP.
- 3.4** Adherent Fines. Fine particles smaller than the No. 200 sieve created from handling, or silt or clay **particles** that adhere to the coarse aggregate.
- 3.5** Certified Aggregate Producer. A Plant/Redistribution Terminal that meets the requirements of the Program, continues to be under the same ownership, and is approved by the Department.
- 3.6** Certified Material. An aggregate product produced under the Certified Aggregate Producer Program (CAPP) for Department use.
- 3.7** Coarse Aggregate. Aggregate that has a minimum of 20 percent retained on the No. 4 sieve.
- 3.8** District. The Department's District Office responsible for administering the materials and test functions in a local area of the state.
- 3.9** Fine Aggregate. Aggregate that is 100 percent passing the 3/8 in. sieve and a minimum of 80 percent passing the No. 4 sieve.

- 3.10** Non-Certified Aggregate Producer. Any Plant/Redistribution Terminal not approved under the Program. These shall include Plants/Redistribution Terminals never entering the Program, those dropping out, and those that have been removed from Certified status by the Department for failure to comply with the Program.
- 3.11** Producer. A company or owner who shall assume responsibility for each of their Certified Plants in compliance with the CAPP.
- 3.12** Program. The Department CAPP.
- 3.13** Qualified Products List (QPL). INDOT's lists of preapproved manufacturers, materials, products, sources, or suppliers.
- 3.14** Quality Control Plan (QCP). A document written by the Producer that is site-specific and includes the production, policies, and procedures used by the Producer.
- 3.15** QCP Annex. A page of the QCP, located in the Appendix, that is used to record revisions for Certified Material additions, Certified Material deletions, target mean and control limit values, or Certified Aggregate Technicians until such time that they are incorporated into the QCP.
- 3.16** SC Aggregate. Aggregate specification required for select seal coat (chip seal) projects.
- 4.0** **SIGNIFICANCE AND USE.** The Indiana Certified Aggregate Producer Program is a program whereby a qualified aggregate Producer desiring to supply material to the Indiana Department of Transportation assumes all of the Plant site controls and the Department monitors the Producers production, sampling and testing procedures.
- 5.0** **PARTICIPANTS.**
- 5.1** **Plant.** Any location at which aggregate is processed into a final material shall be considered a Plant. Different processes for separate materials and stockpile yards at one location shall be considered part of the Plant.
- A Producer Yard shall be the location of stockpiled aggregate materials under the control of the Producer at a point removed from the Plant. This will be considered part of the Producer's total operation.
- 5.2** **Redistribution Terminal.** Any supplier of aggregate material(s) other than at a Plant shall be considered a Redistribution Terminal. Prior source documentation will be required by the Department.
- 6.0** **PRODUCER PERSONNEL.** The Producer's personnel shall include a Management Representative, a Certified Aggregate Technician, and a Qualified Technician.

- 6.1 Management Representative.** The Management Representative shall be responsible for all aspects of production, handling, and control required by the CAPP at each Certified Aggregate Producer's Plant/Redistribution Terminal.
- 6.2 Certified Aggregate Technician.** A Certified Aggregate Technician is a Producer or Consultant employee who has successfully completed the Certified Aggregate Technician Training Program and has been certified by the Department.

The Certified Aggregate Technician may be responsible for more than one Plant/Redistribution Terminal. The technician shall be at the Plant(s)/Redistribution Terminal(s) to perform the pertinent duties during critical activities and to meet the requirements of the QCP. The technician shall supervise the sampling and testing of material, the maintenance of control charts, and the maintenance of the diary. All sampling and testing required by the Program shall be conducted by a Qualified Technician.

- 6.3 Qualified Technician.** An individual who has successfully completed the written and proficiency testing requirements of the Department's Independent Assurance and Qualified Acceptance Personnel Programs.

7.0 MATERIALS.

- 7.1** Material shall be produced in one of three categories: Standard Specification, Quality Assurance, or Alternate. The intended end use of the material and the control limits shall determine the category in which the material is classified.
- 7.2 Standard Specification.** Standard Specification materials shall include all Certified Materials controlled by aggregate gradations as defined in the Department Standard Specifications and the construction contract documents.
- 7.3 Quality Assurance.** Quality Assurance (or QA) materials shall include all Certified Materials controlled by aggregate gradations established by the Producer.
- 7.4 Alternate.** Alternate materials shall include all materials produced for non-state (commercial) use which are not intended to comply with either Standard Specification material or Quality Assurance material.

8.0 LABORATORY

- 8.1** The Producer shall have a suitable laboratory to accomplish the requirements of the CAPP. Laboratories will be inspected by a Department representative before the Producer enters the Coordinated Testing Phase. Laboratories will also be inspected during annual audits and as needed to maintain the integrity of the Program.

- 8.2** The laboratory testing equipment shall meet the requirements of the test methods identified for the required sampling and testing, and as stated herein except that an electronic balance shall be provided. The electronic balance shall be readable to 0.1 g and accurate to 0.2 g or 0.1 percent of the test load, whichever is greater, at any point within the range of use.
- 8.3** The Producer shall maintain laboratory service for each Certified Plant/Redistribution Terminal. One approved laboratory may be used for more than one Plant/Redistribution Terminal provided the requirements of the Program are being maintained. Additional Laboratories can be listed in the QCP if backup laboratories are needed for the source.
- 8.4** The Department shall be allowed access to inspect any laboratory used for the Program, and witness production, handling, and control activities during production of Certified Materials.

9.0 TEST EQUIPMENT CALIBRATION

- 9.1** The test equipment furnished by the Producer shall be properly calibrated or verified, and maintained within the limits described in the applicable test method. The equipment shall be calibrated or verified prior to beginning testing in the Coordinated Testing Phase.
- 9.2** The Producer shall verify the equipment at the frequency indicated:

Equipment	Requirement	Minimum Frequency	Procedure
Balances	Verification	12 mo.	ITM 910
Mechanical Shakers	Check Sieving Thoroughness	12 mo.	ITM 906
Sieves	Check Physical Condition	12 mo.	ITM 902

- 9.3** The equipment verification documentation shall include:
- 9.3.1** A description of the equipment verified including Model and Serial Number.
- 9.3.2** Name of the person and company performing the verification
- 9.3.3** Identification of the verification equipment used, if any (namely, standard weights, thermometers etc.).
- 9.3.4** Last date verification was performed, and next due date.
- 9.3.5** A reference to the procedure used.
- 9.3.6** Detailed records showing the results of the verification performed.

10.0 DIARY.

- 10.1 Each Certified Aggregate Producer shall maintain a diary. The diary, either electronic and/or hard copy, shall have at least one page devoted to each day that there is a material related operation.
- 10.2 The Producer shall retain the diary on file for a minimum period of three years.
- 10.3 Entries in the diary shall as a minimum include:
 - 10.3.1 General weather conditions;
 - 10.3.2 Area of mining operation (location and ledges, or pit area);
 - 10.3.3 Estimated quantity of materials produced;
 - 10.3.4 Time test samples were obtained and tests completed;
 - 10.3.5 Nonconforming gradation tests, and the resulting appropriate action taken;
 - 10.3.6 Changes in key personnel, if any;
 - 10.3.7 Significant changes in equipment, plant, screens, etc., which may affect the current statistical results of aggregate materials;
 - 10.3.8 Any significant event or problem;
 - 10.3.9 Any nonconforming trends in the five-point moving average, as well as the action taken to correct the trends, if needed;
 - 10.3.10 Current compliance rate, updated weekly, for critical sieve products being produced; and
 - 10.3.11 Current load-out PWL from the Department's provided spreadsheet, updated weekly, for applicable products being shipped;
- 10.4 The entry in the diary shall be signed by the Certified Aggregate Technician. On occasion the diary may be signed by another person; however, the diary is required to be counter-signed by the Certified Aggregate Technician.

11.0 MATERIALS SAMPLING AND TESTING.

- 11.1 Sampling shall be in accordance with ITM 207 and testing of all materials that require control for aggregate gradation, decantation, deleterious, crushed particles, and flakiness shall be in accordance with the applicable test method. Sampling shall be performed on uniform tonnage increments in an unbiased manner, and testing of the samples shall be accomplished in such time as to assure that process

control is maintained. Testing shall be performed in accordance with the test methods as designated herein, and the applicable exceptions listed in the Standard Specifications. Test values shall be reported to the nearest 0.1 percent, except for the crushed particle content which shall be reported to the nearest 1 percent. Results are to be rounded using the standard "5" up procedures in accordance with 109.01(a).

- 11.2** The Producer shall retain the test results on file for a minimum period of three years.
- 11.3 Gradation.** The gradation of the material shall be determined in accordance with AASHTO T 27, except as required in 11.4. The frequency of sampling and testing shall be as follows:
- 11.3.1 Start of Production Frequency.** Start of production material is the first 5000 t when producing a new material. Sampling and testing shall be performed a minimum of once every 1000 t for the first 5000 t, but not required to exceed two per calendar day per material.
- 11.3.2 Normal Production Frequency.** Normal production material is material produced after the start of production. Sampling and testing shall be performed a minimum of once every 2000 t, but not required to exceed two per calendar-day per material.
- 11.3.3 Load-Out Frequency.** Load-out material is the Certified Material that is shipped from the Plant/Redistribution Terminal. All Certified Material sold out of a stockpile shall count toward the total tons when figuring when sampling and testing needs to occur. For all products shipping 100 tons or more per year, sampling and testing shall be in accordance with the QCP and shall be established at a consistent frequency per year per product and at least as frequently as the following Load-Out Frequency Table.

Load-Out Frequency	
Shipping Tons/Year	Frequency
< 100 t/year	No samples required
≥ 100 t/year	$1 / \leq 8000$ t
Notes on Frequency:	
<p>1. Begin every calendar year with at least one load-out sample within the first 1000 tons. The remaining samples shall be at the QCP established frequency tonnage interval, calculated beginning at zero tons for the calendar year.</p> <p>2. No daily, monthly, or annual limit on the number of tests.</p> <p>3. Sample within ± 1000 t shipped or ± 1 business day at the completion of each full interval.</p> <p>4. Report and plot <u>all</u> QCP scheduled frequency test results, even when corrective action is later taken based on the test results.</p> <p>5. Track tonnage continuously throughout the year for determination of the next sample. "Reset" the sampling tonnage to zero on January 1 of each calendar year.</p>	
<p>For example, if the QCP for a product sets the frequency at 8000 tons, then: Obtain the first sample of the calendar year between 0 and 1000 tons. Obtain the second sample of the calendar year at 8000 ± 1000 tons, the third sample of the calendar year at $16,000 \pm 1000$ tons, and so on.</p>	

- 11.4 Decantation.** The decantation of the material shall be determined in accordance with AASHTO T 11. All load-out samples shall be washed and decanted. Unless specific problems are encountered, start of production and normal production samples need not be washed and decanted.
- 11.5 Crushed Particles.** The percentage of crushed coarse aggregate particles for gravel shall be determined in accordance with ASTM D5821. The frequency of sampling and testing shall not be less than once per week for each size of material during the start of production and normal production or as designated in the QCP. No test is required if the week's production is less than 100 t.

- 11.6 Deleterious Materials.** The percentage of deleterious materials shall be determined for coarse aggregates in accordance with AASHTO T 112, ITM 206 and the Standard Specifications. The frequency of sampling and testing shall not be less than once per week for each size of material during the start of production and normal production or as designated in the QCP. No test is required if the week's production is less than 100 t.
- 11.7 Flakiness Index.** The flakiness index shall be determined for SC aggregates in accordance with ITM 224 and the Standard Specifications. The frequency of sampling and testing shall be not less than once per week for each size of material during the start of production and normal production or as designated in the QCP. No test is required if the week's production is less than 100 t.

12.0 GRADATION CONTROL

- 12.1** Gradation control shall be performed for each Plant/Redistribution Terminal in accordance with the QCP and requirements herein.
- 12.2 Sieve Control.** Standard Specification materials shall meet the critical sieve requirements for the materials and sieves shown below:

Material	Critical Sieve
No. 5	1/2 in.
No. 8	1/2 in.
No. 9	3/8 in.
No. 11, SC 11	No. 4
No. 12, SC 12	No. 4
SC 16	No. 4

All other Standard Specification materials shall meet the specification or construction contract gradation limit requirements for all sieves, unless controlled by a critical sieve as identified in the QCP.

Quality Assurance coarse aggregate materials, with a designated maximum particle size of 1½ in. or smaller, shall have a critical sieve identified in the QCP. All other Quality Assurance materials shall meet the gradation limit requirements for all sieves, unless controlled by a critical sieve as identified in the QCP.

- 12.3 Target Mean.** All data that exists on a single process shall be used to establish the target mean. For a totally new process, at least 10 consecutive normal production test results shall be used. If production within a year does not result in sufficient data to establish a target mean, then a target mean shall not be determined.

The target mean on the critical sieve for Standard Specification materials, shall be no closer to either specification limit than 1.65 multiplied by the standard

deviation designated in the QCP. The standard deviation shall be equal to or less than 5.0.

The target mean on the critical sieve for Quality Assurance materials shall be established by the Producer for any sampling point.

- 12.4 Control Limits.** Control limits are applicable to all critical sieve test results. They are established as plus or minus two standard deviations, but no greater than plus or minus 10 percent, from the target mean. When a target mean cannot be determined because of insufficient production, the Standard Specification gradation limits or gradation for Quality Assurance material shall be used.

When identified in the Producer's QCP, the Department may agree to designated target mean values and control limits on the critical sieve for the load-out tests that may be different from the production target mean values and control limits.

- 12.5 Test Compliance.** For material produced under either the Standard Specification or Quality Assurance categories, 95 percent of all gradation test results on the critical sieve shall statistically be between 10 percent below and 10 percent above the target mean at any one point of sampling. All other sieves shall be maintained within the Standard Specification, Quality Assurance, or construction contract gradation requirements.

- 12.5.1 Production.** All normal production data on the critical sieves identified for sieve control representing a process shall be included in the calculations for statistical compliance. When the control limits for load-out tests are different than the production control limits, all of the load-out tests may be used. All retest and other extraneous data shall be used for information.

The Producer shall review the 30 most recent production tests for each critical sieve product to ensure the compliance rate is met in accordance with Section 917.

12.5.1.1 If the compliance rate is less than 95% and the standard deviation is less than 5.0%, the Producer shall establish a new target mean and recalculate the compliance rate.

12.5.1.2 If the compliance rate is less than 95% and the standard deviation is 5.0% or greater, the Producer shall designate the stockpile of that product as non-certified material.

12.5.1.3 The Producer shall notify the District Geologist and note in the diary when either of the situations in 12.5.1.1 or 12.5.1.2 occurs.

12.5.2 Load-Out. The Producer shall monitor the PWL for each size 8 and 11 product and their Quality Assurance material equivalents on the Department's provided spreadsheet. For these products, the most recent 30 normal frequency load-out tests since the last documented significant process change on the critical sieves identified shall be included in the calculation for statistical compliance. After at least 5 tests are reported, when the PWL drops below 90 for a given product, the Producer shall notify the District Geologist. A plan shall be developed to bring the PWL of the product back above 90.

12.5.3 Load-Out Reporting/Uploading. The Producer shall upload load-out results for size 8s and 11s (and QA equivalents) as directed by the Department in the annual Management Representative letter.

12.6 Alternate Materials. Controls and limits as detailed in the Program herein do not apply for Alternate materials unless so stated in the QCP.

12.7 Nonconforming Tests. A nonconforming test shall be any test which falls outside the control limits identified in the QCP for Standard Specification or Quality Assurance materials controlled by a critical sieve. For sieves other than the critical sieve, a nonconforming test shall be any test which falls outside the control limits identified in the QCP for Quality Assurance materials, or outside the specification limits for materials controlled by Standard Specification requirements. Any nonconforming normal production or load-out test shall be followed immediately by a corrective action. Corrective actions shall include, but are not limited to, investigation for assignable cause, correction of known assignable cause, and retesting. Plants/Redistribution Terminals that continue to have repeated nonconforming normal production or load-out test results, due to lack of appropriate action, shall be subject to suspension from the Certified status by the Department.

A second consecutive nonconforming normal production test result shall require the material to be isolated from the approved stockpile until action has been taken to eliminate the cause of the nonconformity. When a second consecutive nonconforming load-out test occurs, shipping from that stockpile shall cease until corrective action and testing has occurred that verifies the stockpile is acceptable for shipment.

12.8 Statistical Compliance. The Producer shall continuously monitor and maintain statistical compliance in accordance with 917 and this ITM.

13.0 CONTROL CHARTS.

13.1 Control charts are a visual representation of the process control exercised by a Producer. Unless otherwise provided in the QCP, the control charts shall be either posted on a wall at the laboratory or maintained electronically. At a minimum,

the **control charts** shall be maintained until 30 production data points have been plotted. After that time at least 30 production data points shall be continuously displayed. **If load-out points are plotted separately, then the load-out charts shall be maintained for a minimum of 30 load-out data points.**

- 13.2** The Producer shall retain the control charts on file for a minimum period of three years.
- 13.3 Application.** As a minimum, control charts will be required for gradation control using all start of production and normal production test results for all Standard Specification and Quality Assurance materials or for gradation controlled Alternate materials. For materials which have a critical sieve, only the critical sieve is required to be charted. For all other charted materials, all applicable sieves shall be shown on the chart. Load-out test results shall also be plotted and may be displayed on the same chart as start of production and normal production test results when the target mean remains unchanged. When the load-out target mean is designated in the QCP to be different from the production target mean, the load-out samples shall be charted separately. Other properties may also be charted as part of the Producer's overall QCP. A separate chart shall be maintained for each size of material being produced.

The Producer shall report and plot all normal frequency production and normal frequency load-out test results, even when corrective action is taken based on the test results. Resamples, retests, information tests, and diversions of entire production runs from under the cone, shall have test results listed in the diary but are not normally plotted.

13.4 Chart Construction.

- 13.4.1** The target mean shall be represented by a heavy long dash followed by a short dash line.
- 13.4.2** Control limits shall be represented by heavy solid lines.
- 13.4.3** Upper and lower specification limits shall be indicated by short, dashed lines. Specification limits are not required to be included on charts for critical sieves that have established control limits.
- 13.4.4** The horizontal lines on the chart indicating the specification limits, control limits, and target mean value, if applicable, shall be numerically identified in the left margin.
- 13.4.5** The plot point for the production test results shall be surrounded by a small circle, and each consecutive point shall be connected by a solid straight line.

- 13.4.6 The moving average of the most current five production test values shall be plotted for the critical sieve. The plot points shall be indicated by a small triangle symbol and connected by solid straight lines.
- 13.4.7 When load-out test points appear on the same chart as production points, they shall be represented by a small square.
- 13.4.8 When load-out test points are plotted on a separate chart, they shall be represented by a small square and connected by a straight line.
- 13.4.9 Test results shall be plotted left to right in chronological order, and dates corresponding to each test shall be shown along the horizontal axis.
- 13.4.10 Any proposed deviation from these procedures shall be identified in the QCP.

13.5 Conformance. The Producer shall apply statistical techniques to interpret all control charts and take corrective action when so indicated. Corrective action shall include, but is not limited to, investigation for assignable cause, correction of known assignable cause, and retesting, if necessary.

14.0 QUALITY CONTROL PLAN.

- 14.1 The QCP is a fundamental element in the Program, and shall be one of the first considerations in approval by the Department. Each Plant/Redistribution Terminal providing aggregate under the Program shall have a written QCP, which shall be site and plant specific, and be the basis of control. The QCP shall describe the methods of controlling all properties and quality aspects, which shall involve greater detail than the basic requirements of the Department specifications and policies. The QCP shall encompass the total process from preliminary material quality approval through the point where the aggregate leaves the Producer's control.
- 14.2 The QCP shall include the following information for each Plant/Redistribution Terminal, if applicable:
 - 14.2.1 The location of the site, including latitude and longitude, physical address, and mailing address if different than the physical address. Reference to the nearest identifiable points such as highways and towns shall also be included.
 - 14.2.2 The Parent Company, Management Representative, Certified Aggregate Technician(s) and Qualified Technician(s) at each location and the procedure for contacting these individuals by phone, US Mail, and email address. Also, the CAPP duties and responsibilities of each of the people listed shall be specified.

- 14.2.3** A list and description of all portions of the mineral deposit(s) indicating the different quality classes as established in the current editions of ITM 203 and ITM 210, and as indicated on the Source Category Classification Approval letter. The manner in which each quality class will be processed, handled, and stockpiled shall be specified.
- 14.2.4** A statement regarding AP Aggregate shall be made to include the ledges for stone, production zone for gravel, the general handling and crushing procedures, and stockpile signage. An AP Production Control Plan may be included in the Appendix instead of this statement.
- 14.2.5** A statement regarding ACBF shall be made to include the procedures for sampling and testing for determination of leachate in accordance with ITM 212.
- 14.2.6** A statement regarding SF shall be made to include the procedures for sampling and testing for determination of bulk specific gravity when SF is used in SMA mixtures. Also, a statement regarding SF coarse aggregate shall be made to include the procedures for sampling and testing for determination of deleterious materials in accordance with ITM 219.
- 14.2.7** A statement regarding lightweight aggregate shall be made to include the procedures for sampling and testing for determination of the specific gravity factor and the absorption in accordance with ITM 222.
- 14.2.8** A statement regarding natural sand fine aggregate composite stockpiling shall be made to include the procedures for sampling and testing when composite stockpiling of multiple sources into one stockpile.
- 14.2.9** An explanation for each material having marginal quality characteristics, and the plan or controls to be used for such materials.
- 14.2.10** An identification of the category in which each material produced is classified.
- 14.2.11** A generic production flow diagram, which shall be a step-by-step chart using standard symbols, showing all the steps involved with mining and processing from the natural deposit to the finished material and the points of sampling. Detailed items such as equipment manufacturer's names, screen sizes, dimensions, etc., are not required to be listed. A copy of the symbol legend shall be included.
- 14.2.12** A sampling plan that includes locations, devices, techniques, frequencies, and test methods, if applicable.

- 14.2.13** A testing plan that includes the types of tests, and test methods. The procedure for isolating nonconforming material shall be specified.
- 14.2.14** A list of the target mean values, standard deviations, and control limits on the critical sieves for each material identified as being controlled by critical sieve requirements. Changes in the target mean are **allowed** by addenda to the QCP.

Materials for which no control limits are appropriate shall be identified.

The gradation limits for all Quality Assurance materials shall be included.

Gradation limits for products that are intended to meet multiple gradation requirements shall use the more stringent controls for each product and these limits shall be included.

- 14.2.15** A description of any other process control techniques that will be used beyond the minimums established by Department specifications and policies. These controls may include, but are not limited to, the following:
- a) Different types or greater frequencies of material testing.
 - b) Other midstream sampling and testing prior to material completion.
 - c) Visual checks and monitoring.
- 14.2.16** A plan for downstream controls after material completion. These controls shall address such items as the identification of material stockpiles by signing, **including ledges if applicable**, or other acceptable methods, techniques for construction of proper stockpiles, material retrieval techniques and safeguards to ensure the loading and shipping of uncontaminated material.
- 14.2.17** **A list of test equipment that is calibrated or verified, the test methods and frequency of calibration or verification of the equipment, and a statement of accessibility of the laboratory and documentation to Department personnel.**
- If the laboratory is not located at the Plant, the location of the laboratory shall be designated, and the procedure for transporting samples to the laboratory shall be included.**
- 14.2.18** A documentation plan with details on control charting, test data, and the diary. Copies of the forms may be included.

- 14.2.19** The method by which the frequency of production and load-out testing of the Certified Materials is verified.
- 14.2.20** The location of the reference documents, control charts, diary, test data, material shipment records, and any other pertinent information.
- 14.2.21** The method of control for each Producer Yard.
- 14.2.22** A statement of the procedure for handling addenda.
- 14.2.23** Annual Aggregate Source Report (stone sources only). The report shall be in accordance with ITM 203, 8.1 and shall be included in the Appendix of the QCP. Redistribution Terminals are required to include this report for materials received from a source that is not a Certified Aggregate Producer.
- 14.2.24** An Appendix. As a minimum the appendix shall contain an Addenda Summary Sheet.
- 14.3 Authentication.** The last page of the QCP shall contain two signature blocks. The right-hand block shall be signed and dated at the time of submittal by the Producer's Management Representative, and shall include the title of the person making the signature. The left hand block shall be signed and dated at the time of approval by the State Materials Engineer, Division of Materials and Tests. The Producer shall submit the QCP to the District Geologist for review. The District Geologist will forward it to the INDOT Statewide Geologist for final review and approval. The authentication page will be returned to the Producer after approval.
- 14.4 Addenda.** The Producer shall transmit all applicable process control revisions to the District Testing Engineer in the format of addenda to the QCP. Each page of the QCP that is revised shall include the source number, date of revision, and means of identifying the revision. The addenda shall include a signed and dated authentication page that is signed by the Management Representative and subsequently signed by the District Testing Engineer upon approval.
- Revisions for Certified Material additions, Certified Material deletions, target mean and control limit values, or Certified Aggregate Technicians shall be submitted in the format of a QCP Annex as they occur, and upon approval by the District Testing Engineer shall be included in the Appendix of the QCP. Revisions, other than items on the QCP Annex, shall be maintained on the Addenda Summary Sheet in the QCP Appendix.
- Addenda may be submitted at the annual audit close-out meeting or between January 1st and April 1st of each calendar year. The addenda shall include items on the QCP Annex, items on the Addenda Summary Sheet, and any other

necessary revisions at the time of submittal. Upon incorporation into the QCP as addenda, the QCP Annex and items on the Addenda Summary Sheet shall be removed from the QCP Appendix. The Annual Aggregate Source Report shall be submitted by April 1st of each calendar year.

14.5 Certified Material Additions. A Producer without a Certified Material that is controlled by a critical sieve is required to meet the applicable requirements of 12.0 prior to adding the Certified Material. A Producer without a Certified Material that is not controlled by a critical sieve is required to verify that the material meets the requirements of the Standard Specifications or Quality Assurance gradation limits for all sieves prior to adding the Certified Material. A Producer may add a Certified Material using the following procedure:

14.5.1 Prior to shipment of the material, the Producer shall submit a QCP Annex to the District Testing Engineer.

14.5.2 Shipment of the material may begin as soon as approved by the District Testing Engineer.

14.5.3 The control limits will be the Standard Specification gradation limits for the appropriate size of material. If the material is a Quality Assurance material then the Producer shall designate the control limits. If the material is controlled by a critical sieve, then the control limits for that sieve shall be used when the target mean and standard deviation are in accordance with 12.3.

14.5.4 Materials that do not have a critical sieve requirement shall be sampled and tested in accordance with 11.3.

Materials that have a critical sieve requirement shall be sampled and tested a minimum of once every 1000 t, but not required to exceed two per calendar day. Load-out frequency shall be in accordance with 11.3. When the target mean and standard deviation are in accordance with 12.3, the frequency of sampling and testing for normal production shall be in accordance with 11.3.

14.5.5 Split samples shall be obtained by the Producer for each sample and provided to the Department. The sample splitting procedure and test results agreement shall be the same as the guidelines used during the Coordinated Testing Phase. Split samples shall be obtained until the Department is satisfied with the performance and testing results from the Producer. If the material is similar in size to an existing Certified Material, the District Testing Engineer may waive the requirement for split samples.

15.0 COORDINATED TESTING PHASE.

- 15.1** The Coordinated Testing Phase is the initial phase for Certification. The purpose of this phase is to build mutual confidence in production capability, capacity, uniformity, and quality. Sampling and testing procedures, and test results will be reviewed in a coordinated and shared manner between the Department and the Producer. While operating in this phase, the Producer shall develop the details of the QCP and demonstrate the ability to produce to the required test compliance rate. Mean test values and standard deviations are developed during this process for the critical sieves. Each Plant/Redistribution Terminal shall be under the Coordinated Testing Phase for at least three months of production, or a period as determined by the Department.
- 15.2** Each Plant/Redistribution Terminal requesting to enter the Coordinated Testing Phase shall do so in writing to the State Materials Engineer, Division of Materials and Tests. The request shall include all of the materials to be supplied at the source regardless of whether the materials are for Department or other uses.
- 15.3** **Aggregate Sizes.** While operating in the Coordinated Testing Phase, Producers are encouraged to limit the Coordinated Testing procedures to aggregate sizes 5 or 8; **AASHTO 57**, 43, 53, or 73; or 23 or 24. Quality Assurance materials may also be used for the Coordinated Testing procedures.
- 15.4** **Control Charts.** Test results shall be charted in accordance with requirements for Certified Material, except that the corrective action need not apply. The Producer will be expected to use the charts as basic indicators of variation, and to become aware of limitations needed on any process. During this phase charts shall be maintained for all sieves.
- 15.5** **Sampling and Testing.** The frequency and types of tests for the Producer's sampling and testing shall be the same as the minimum requirements of the start of production and normal production for Certified Material, except that decantation will be required.

The use of a random sampling method is encouraged; however, if a random sampling method is not used, and if more than one sample per day is required, the samples shall be spread throughout the day's expected production. Department aggregate technicians will conduct coordinated/side-by-side testing on as many of these samples as possible. In any event, Department testing will be conducted on not less than every other test conducted by the Producer, or until the Department is satisfied with the performance and testing results from the Producer.

The coordinated tests shall utilize a split sample for all tests except non-durable, total chert, which shall use the same sample. The procedure for splitting samples shall be in accordance with **AASHTO R 76**. Both split halves on the final split shall weigh within 10 percent of each other after splitting. If not, both halves shall be recombined and split until this requirement is met.

15.6 Producer Records. During the Coordinated Testing Phase the Plant/Redistribution Terminal shall maintain the same references, charts, reports, diary, and Source Category Classification Approval letter as required for the Certified Aggregate Producer

15.7 Test Results Agreement. The Coordinated Testing Phase guidelines for test agreement are:

Sieve Analysis	
Sieve Size	Maximum % Difference
1-1/2 in. thru 3/8 in.	5
No. 4 thru No. 8	3*
Minus No. 200 (decant less than 5.0)	0.5
Minus No. 200 (decant equal to or greater than 5.0)	1.0

* The maximum % difference for sizes 43, 53, and 73 is 5 %.

Crushed Particles. The difference should not exceed 5 percent for both one and two face fractured particles.

Non-Durable, Total Chert. The difference should not exceed 40 percent of the lowest results or 1 percent, whichever is greater.

Test result differences will be resolved on-site between the Producer's technicians and the Department's technician, if feasible. If such differences are not readily resolved, the Area Supervisor and/or the District Testing Engineer will resolve the difference. The resolution will be recorded by both technicians.

15.8 Data Reporting. Within the first week of each month copies of the test results, control charts, and the diary shall be forwarded to the District Testing Engineer.

16.0 TRIAL PHASE. The Trial Phase is the second phase for obtaining Certification. This phase starts when the Producer has successfully completed the Coordinated Testing Phase and the QCP has been approved. During this phase the Producer shall demonstrate the ability to follow the QCP. Monthly submissions of test results, control charts, and the diary shall be continued. Revisions to the QCP by addenda may be made at the Trial Phase Audit close-out meeting.

17.0 CERTIFICATION.

17.1 Each Plant/Redistribution Terminal meeting the requirements of the CAPP shall be eligible for Certification. Each Certified Producer must comply with the Program as detailed herein. After approval, monthly submissions of test results, control charts, and the diary are not required.

- 17.2 Material Shipment Record.** Certified Producers shall have records in sufficient detail so as to enable the Department to verify the frequency of load-out testing.

The record shall include:

- 17.2.1** Date of shipment.
- 17.2.2** Originating source name of material.
- 17.2.3** Total amount shipped each day.
- 17.2.4** The type and size of aggregate.
- 17.2.5** Ledges for stone materials.

- 17.3 Weigh Tickets.** The Certified Producers approval number, originating source name, source number, aggregate size, **class of aggregate from the INDOT QPL**, and ledges for stone materials, shall be entered on each weigh ticket representing material for Department use.

- 17.4 Change of Ownership.** Once the Department has Certified a Plant/Redistribution Terminal, there is no automatic expiration date for the Certification; however, in the event of a change in ownership of the Plant/Redistribution Terminal, the certification shall expire on the date of such change. The new ownership may avoid such expiration by immediately submitting a statement to the State Materials Engineer, Division of Materials and Tests indicating recognition of the details of the CAPP, the existing QCP, and a clear pronouncement of intent to operate in accordance with the requirements of both documents.

- 17.5 Inactive Status.** A Producer may request to be placed on Inactive Status to temporarily suspend meeting the requirements as a Certified Aggregate Producer. The procedures for temporary suspension of the Program shall be as follows:

- 17.5.1** A Producer may request to be placed on Inactive Status to temporarily suspend meeting the requirements of a Certified Producer by submitting a statement to the State Materials Engineer, Division of Materials and Tests requesting Inactive Status. If for a duration of three years, a Producer has not produced or shipped any material which would require production or load-out testing under the CAPP, the Division of Materials and Tests may notify and place the source in Inactive Status.

17.5.2 While in the Inactive Status, the Producer may ship all Certified Materials in existing stockpiles at the time of suspension if the requirements of the Program have been met for these stockpiles.

17.5.3 Once made “Inactive”, the Producer may obtain Certified Aggregate Producer status again by submitting a statement to the State Materials Engineer, Division of Materials and Tests requesting re-entry into the Program. Any revisions to the Quality Control Plan that the Division of Materials and Tests has on file shall be submitted with the re-entry request. Quality approval will be granted in accordance with ITM 203, including updated Source Production Qualities as described in Table II. The district will work with the source to complete Start of Production Frequency gradation testing in accordance with ITM 211 11.3.1. Passing physical quality and gradation results are required prior to shipping any state approved material.

18.0 DEPARTMENT RESPONSIBILITIES

18.1 QPL. The Department will maintain an updated QPL of all Plants/Redistribution Terminals that are currently certified.

18.2 Certified Technician List. The Department will maintain an updated, published list of all currently certified technicians.

18.3 Auditing. The Department will conduct an annual audit of the Program on a random basis at each Plant/Redistribution Terminal to verify that the Producer's production, load-out, sampling, and testing procedures are in accordance with the Program. The audit will include random samples taken by the Producer for informational purposes as directed by the Department. These samples shall be provided to the Department. The sample splitting procedure, and test result agreement shall be in accordance with 15.5.

18.4 Mineral Quality. The Department will be responsible for the pre-approval of the mineral quality at each Plant location in accordance with ITM 203 and ITM 210.

18.5 Training. The Department will administer a Certified Aggregate Technician Training Program for those aggregate technicians that perform the required duties of the Program. Certification of the technicians will be provided by the Department upon successful completion of the training. Certification for all Certified Technicians expires annually on July 1. Recertification is accomplished by attending a Regional Spring Meeting or by watching a video of the meeting and passing a quiz. Recertification will extend the certification to July 1 of the following year.

The Department will administer the Independent Assurance and Qualified Acceptance Personnel Program for those aggregate technicians that perform

acceptance sampling and testing duties of the Program. Qualification of the technicians will be provided by the Department upon successful completion of a written examination and proficiency test. Certified Technicians cannot perform acceptance sampling and testing duties unless the Certified Technician is currently qualified by Independent Assurance. Qualified Technicians are only allowed to perform acceptance sampling and testing duties but are not allowed to sign the daily diary and CAPP documents. Only Certified Technicians can sign these documents.

- 18.6 Certification Removal.** Removal from the approved status of a Certified Producer will be the responsibility of the State Materials Engineer, Division of Materials and Tests.

The Producer shall have a right to dispute the removal from Certified Producer status to the Director, Division of Materials and Tests.

- 18.7 District Jurisdiction.** The District Testing Engineer will have the authority to suspend shipment of a specific material or stockpile if the Producer has failed to comply with the Program such that material quality and uniformity is not being met. Such action will be promptly reported to the State Materials Engineer, Division of Materials and Tests.

The Producer shall have the right to dispute the suspension of shipment by the District Testing Engineer to the State Materials Engineer, Division of Materials and Tests.

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