AGGREGATE TECHNICIAN DUTIES

Duties of the Aggregate Technician are detailed in IM 209 and the IM 300 Series and consist of, but are not limited to the following:

A. Sampling

1. Obtain representative samples by approved method(s).
2. Sample at required frequencies.
3. Identify samples with pertinent information such as:
    a. Type of material
    b. Intended use
    c. Production beds working depth
    d. Sampling method

B. Gradation Testing

1. Follow appropriate gradation testing methods.
2. Maintain current applicable specifications.
3. Post test results within 24 hours of sampling.

C. Other Testing as Required (specific gravity, moisture, deleterious material, etc.)

1. Follow appropriate testing methods.
2. Maintain current applicable specifications.
3. Complete required reports.

D. Sampling & Testing Equipment

1. Clean and check testing sieves for defects.
2. Assure scale accuracy.
3. Maintain sampling and testing equipment.

E. Communication

1. Notify the District Materials office for production start-up or changes.

2. Relay test results to appropriate production or supervisory personnel.

3. Report failing test results immediately to appropriate personnel (including District Materials office) and assure remedial actions are taken.

F. General

1. Monitor stockpiling procedures to avoid contamination and excess segregation.

2. Assure proper identification of stockpiles.

3. Assure specification requirements for intended use are met before shipment.

4. Assure sampling locations are safe.

5. Assure proper bedding planes or production depths are maintained.

G. Documentation

1. Report all production test results of certified aggregates on Form #821278 and distribute as required.

2. Assure “plant production log” is maintained.

PORTLAND CEMENT CONCRETE (PCC) TECHNICIAN DUTIES
PAVING & STRUCTURAL CONCRETE

The Quality Control Technician shall have no other duties while performing certified inspection duties. The District Materials Engineer may approve all quality control activities be performed by a single certified technician for low production situations.

Many of the duties of the PCC Level II Technician are detailed in IM 527 (Paving) and IM 528 (Structural) and consist of, but are not limited to the following:

A. Stockpiles

1. Assure proper stockpiling procedures.
2. Prevent intermingling of aggregates.
3. Prevent contamination.
4. Prevent segregation.

B. Plant Facilities

1. Assure safe sampling locations.
2. Check for equipment compliance.
3. Assure proper laboratory location and facilities.

C. Calibration

1. Be present during calibration (paving).
2. Check plant calibration (structural).
3. Assure proper batch weights.

D. Cement (Fly Ash) & Aggregate Delivery

1. Check for proper sources and certification.
2. Document quantities delivered.
3. Monitor condition of shipments.

E. Plant Sampling

1. Check aggregate gradations by obtaining, splitting, and testing samples.

2. Check aggregate moistures and specific gravity.

F. Proportion Control

1. Check scale weights and operation.

2. Check admixture dispensers.

3. Check mixing time and revolutions.

4. Check cement yield. (Paving plant only, unless over 10,000 cu. yds.)

G. Concrete Tests

1. Cure flexural test specimens.

2. Test flexural specimens (Contract agency will perform test in structural plant).

3. Conduct maturity testing.

H. Test Equipment

1. Clean and maintain scales, screens, pycnometers and beam molds, and laboratory facility.

I. Documentation

1. Prepare daily plant reports (paving), weekly plant reports (structures).

2. Document all checks and test results in the field book.

3. Maintain daily diary of work activity.

HOT MIX ASPHALT (HMA) TECHNICIAN INSPECTION DUTIES

The following is a list of the duties that must be performed by the Certified Level I HMA Technicians doing quality control work for the Contractor on all projects where the Quality Management-Asphalt (QM-A) specification applies.

These duties consist of, but are not limited to, the following:

A. Aggregate Stockpiles.

1. Assure proper stockpiling of aggregate deliveries. (stockpile build & additions) (daily check list, IM 508)
    a. Prevent intermingling of aggregates.
    b. Check for and prevent contamination.
    c. Prevent segregation.
    d. Check for oversize material.
2. Document certified aggregate deliveries. (each delivery) (plant book, IM 508)
    a. Obtain truck tickets.
    b. Check for proper certification.
    c. Check for proper approved source.
    d. Enter deliveries in Plant Book Program, Aggregate Certification page.
3. Observe loader operation. (daily) (daily check list, IM 508)
    a. Check for proper stockpile to bin match-up.
    b. Check that loader does not get stockpile base material in load.
    c. Check that loader does not intermingle aggr. by overloading bins.

B. Asphalt Binder Delivery. (each delivery) (plant report & plant book, IM 508 & 509)

1. Check that material is pumped into correct tank.
2. Document Deliveries.
    a. Obtain truck tickets.
    b. Check for proper approved source.
    c. Check for proper certification.
    d. Check for proper grade.
    e. Check for addition of liquid anti-strip if required.
    f. Check if weight per gallon or specific gravity has changed.
    g. Enter deliveries into Plant Book Program, Asphalt Binder Shipment Log page.

C. Plant Operations. (daily)

1. Prepare Plant Report Program for daily entries. (plant report, IM 511)

    a. Enter Date.
    b. Enter Report Number.
    c. Enter expected tonnage for the day.
    d. Enter any proportion or target changes that apply.

2. Aggregate Delivery System. (daily check list, IM 508)

    a. Check for proper cold feed gate settings.
    b. Check for proper cold feed belt speed settings.
    c. Check for proper moisture setting (drum plants).
    d. Monitor RAP proportions

3. Mixing System. (daily check list, spec 2303.03, IM 508)

    a. Check for proper asphalt binder delivery setting.
    b. Check for proper interlock operation.
    c. Monitor coating of aggregates.
    d. Monitor mixing time (batch plants).

4. Loading System. (daily check list, spec 2303.03 & 2001.01, IM 508)

    a. Check hopper/silo gates for proper open/close
    b. Check trucks for proper loading and possible segregation.
    c. Check trucks for diesel fuel contamination in box and remove contaminated trucks from service (5 hrs with box raised).

5. Asphalt Binder Quantity Determination. (plant report, IM 508 & 509)

    a. Perform start-up tank stick measurement before mix production begins (if applicable).
    b. Perform final tank stick measurement after mix production is done (if applicable).
    c. Perform intermediate tank stick measurements as needed.
    d. If using meter for quantity, obtain totalizer printout readings and periodically check against tank stick readings.
    e. If using batch count for quantity, obtain printouts of each batch and add up the asphalt binder used for total quantity.

D. Plant Operations. (2 hour intervals) (plant report, IM 508)

1. Temperatures.

    a. Monitor and record mix temperature at discharge into truck box.
    b. Monitor and record asphalt binder temperature.

c. Monitor and record air temperature.

2. Observe plant operation for any irregularities.

E. Weighing Equipment.

1. Proportioning scales (batch plants). (min. 1/day) (spec 2001.07 & .20) (daily check list, IM 508)
   a. Perform sensitivity checks of scales.
   b. Check for interference at scale pivot points.

2. Pay Quantity Scales. (min. 1/day) (spec 2001.07 & .20, IM 508) (daily check list, plant book)
   a. Regularly perform check weighing comparisons with a certified scale as necessary. (min. 1st day and one additional if >5000 tons, and as directed by Engineer)
   b. Perform sensitivity checks of scales.
   c. Check for interference at scale pivot points.
   d. Perform verification weighing (truck platform scales).

3. Weigh Belts. (daily) (daily check list)

   a. Check weigh belt for excess clinging fines that effects speed reading.
   b. Check weigh belt for interference at bridge pivot points.
   c. Check for proper span setting.

4. Enter scale checks in Plant Book Program, Daily Check List or Plant Scale Checks page. (daily) (plant book)

F. Plant Sampling. (daily) (spec 2303.04, IM 204 & 511)

1. Obtain cold-feed gradation samples as directed by Contracting Authority personnel per IM 301and IM 204.

2. Obtain asphalt binder samples as directed by Contracting Authority personnel per IM 323 and IM 204.

3. Enter sample data into Plant Book Program, Sample Log page.

4. Obtain cold-feed moisture samples at a minimum of every ½ day (drum mix plants).

G. Field Sampling (if not performed by others). (daily) (spec 2303.04, IM 204 & 511)

1. Obtain uncompacted mix random samples as directed by Contracting Authority personnel, and identify time, station, lift and side.

3. Obtain compacted mix core random samples as directed by Contracting Authority personnel.

H. Testing. (daily) (spec 2303.04, IM 204 & 511)

1. Field cores.

    a. Provide properly calibrated equipment for Contracting Authority technician's use.
    b. Obtain and record core location station and offset information.
    c. Obtain copy of core thickness measurements from Contracting Authority Technician.
    d. Obtain copy of core weights from Contracting Authority technician.
    e. Record weights and thickness in Plant Report Program.
    f. Enter sample data into Plant Book Program Sample Log page.

2. Uncompacted mix.

    a. Properly store Contracting Authority secured portion of paired sample.
    b. Split Contractor half of paired sample into test portions as per IM 357.
    c. Perform gyratory compaction as per IM 325G.
    d. Perform bulk specific gravity test of laboratory-compacted specimen as per IM 321.
    e. Perform maximum specific gravity test as per IM 350.
    f. Enter test data into Plant Report Program.
    g. Submit secured samples to DOT District Lab.
    h. Enter sample data into Plant Book Program, Sample Log page.

3. Aggregate.

    a. Split one sample each day as directed by Contracting Authority personnel and provide half for testing by Contracting Authority.
    b. Perform gradation analysis as per IM 302 and enter weights into Plant Report Program.
    c. Perform moisture tests and enter weights into Plant Book Program, Plant Moistures page (drum mix plants).

4. Testing Lab Qualification. (as needed) (IM 208 & 511)

    a. Record all HMA sample validations with DOT on form 235.
    b. Document corrective actions taken when not correlating.
    c. Document all test equipment calibrations.
    d. Update IM's, test procedures and specs as required.

I. Documentation. (daily) (spec 2303.04, plant report, plant book, IM 204, 511 & 508)

1. Prepare computerized Daily Plant Report (form 241).

    a. Check that all data is correct.
    b. Check that all data is complete.
    c. Compute moving averages for gradation and lab voids.
    d. Compute tons of mix used to date.
    e. Enter mix adjustment data on report.
    f. Check for spec compliance.
    g. Immediately report non-complying results.
    h. Obtain and record mat temperatures and stationing.
    i. Provide daily Plant Report printout to DME.

2. Maintain a daily diary of work activity in Plant Report Program.

    a. Record weather conditions.
    b. Record daily high and low temperatures.
    c. Record sunrise and sunset times.
    d. Record any interruptions to plant production.
    e. Record any other significant events.

3. Copy and export daily data and paste into control charts program.

4. Enter all asphalt binder or aggregate proportion changes in Plant Book Program, Mix Adjustments page.

5. Enter tack shipment quantities in Plant Book Program, Tack Shipment Log page.

6. Total all truck tickets delivered to project and deduct any waste to determine HMA pay quantity.

J. Miscellaneous. (daily) (daily check list, IM 208 & 511)

1. Fill out Plant Book Program, Daily Check List page.

2. Clean lab.

3. Back-up computer files.

4. Dispose of samples as directed by District Lab.

5. Clean and maintain lab equipment.

K. Independent Assurance Duties. (Every 3 months) (IM 205 & 216)

1. Pick up HMA and aggregate proficiency sample from District Lab.
2. Test aggregate proficiency sample for gradation per IM 302.
3. Test HMA proficiency sample per IM 357, 325G, 321 & 350.
4. Report test results on proficiency samples to Central Materials Office per IM 205.

L. Project Duties. (1/project) (IM 508 & 511)

1. Be in possession of appropriate mix design.
2. Be present during plant calibration.
3. Observe scale calibrations.
4. Perform plant site and set-up inspection and fill out Plant Site Inspection List.
5. Set up Plant Report and Plant Book Programs and enter all project information to create Project Master files at beginning of project.
6. Check that release agents used in truck boxes are on the approved list in IM 491.15
7. Copy all computer files and provide to the Contracting Authority at completion of project.
8. Copy all paperwork and control charts and provide to the Contracting Authority at completion of project.

PRESTRESS TECHNICIAN DUTIES

Duties of the Prestress Technician are detailed in IM 570 and consist of, but are not limited to the following:

A. Pre-pour

1. Identify and document materials requiring outside fabrication inspection.
2. Identify potential fabrication or production problems and notify Iowa DOT inspectors.
3. Verify that all materials incorporated meet the requirements of the contract documents.
4. Review concrete placement documents for strand locations.
5. Check tension calculations.
6. Measure elongation and gauge pressure during tensioning.
7. Check hold down and insert locations.
8. Check stress distributions.
9. Check steel reinforcement and placement.
10. Check strand position.
11. Check condition of pallet.
    a. Level
    b. Holes
    c. Gaps
    d. Other deformities
12. Determine moisture of aggregates.
13. Check form condition and placement.
    a. Oil
    b. Line alignment level
    c. Tightness

B. Concrete Placement

1. Check on use of an approved mix design and batching operations (sequence).
2. Assure appropriate placement and proper vibration techniques.
3. Measure and record concrete temperature.
4. Assure test cylinders are properly made.
5. Assure appropriate finish.
6. Assure appropriate curing operations.

C. Post-pour

1. Check temperature and record during curing process.
2. Assure concrete strength has been met prior to releasing the line.
3. Assure proper detensioning procedure.
4. Check unit for defects and obtain approval for repairs.
5. Identify and store cylinders with the respective units.
6. Check beam ends for fabrication in accordance with the plans.
7. Assure exterior sides of facia beams are grouted.
8. Inspect after patching and desired surfacing.
9. Measure and record overall dimensions of beam.
10. Measure and record camber at release and compare to design camber.
11. Check and/or measure and record lateral sweep before shipping.
12. Assure proper cylinder cure.

PROFILOGRAPH TECHNICIAN DUTIES

Duties of the Profilograph Technician are detailed in IM 341 and consist of, but are not limited to the following:

A. Test pavement for smoothness criteria.

B. Evaluate and certify test results.

   1. Certified person that reduces trace must sign certified test report.

   2. Profilograms become part of permanent project record.

C. Documentation

   1. Certified Profilograph Test report must include following statement:

      This is to certify that all testing and trace reduction herein described has been performed according to applicable contract specifications and requirements.