Utilization of NTPEP Audit Data

INDOT Review Process
Review Process Steps

• Audit Report
• Comparison Data
• Corrective Action Report (CAR) Review
• Discrepancies
• Determination of Approval
Audit Report

- Summary
- Section Specifics
- CARs
Sample / Yard Inspection (Section 7)

- Plastic pipe was very well organized by size throughout the entire stockyard.
- The required information was labeled clearly on each piece of AASHTO pipe except for:
  - The 10 inch pipe manufactured on 1/1/11 did not contain the month, date, and shift of manufacture (on the permanent marking placed on the pipe).
  - Root cause was operator not putting the stamp in molds and there was no double check completed on the inspection of pipe. All pipe has been inspected and found that one small stack was missing date and plant code. The pipe was made on the same day and from the same shift. All questionable product has been quarantined with red tape and inspected by the Manager. These will be hot stamped with the correct date and plant code and place back in yard. All Supervisors will be required to check the date, plant, and AASHTO encoding at the beginning and end of each shift and sign off on the quality inspection sheet. The Manager will verify each day that QC sheets have been signed by Production. Random yard audits will also document that encoding and date code are present on pipe.

Audit Report Summary

- Root cause
- Action
- Substantiation
Three samples of M294 pipe (15 inch diameter – Type S, 42 inch diameter – Type S, and 48 inch diameter – Type SP) and three samples of M252 pipe (4 inch diameter – Type S, 6 inch diameter – Type S, and 10 inch diameter – Type SP) were selected to review the test reports and COA’s. All of the records contained the proper information except:

- Results for Brittleness testing of the 4-inch diameter – Type S sample (dated: 1/1/11) were missing and not presented to the Auditor at the time of the audit. At that time there was not an effective method to verify all required samples submitted correctly. We have instituted a tracking program to cross reference lab samples with production runs. Performing this action could be done Quarterly and the Plant will run the program to cross reference lab sample and production submittals in order to catch an undocumented pipe run in a timely manner.

Audit Report Summary

Root cause
Action
Substantiation
Records Review (Section 10)

- This plant performs equipment calibrations at more frequent intervals than required by AASHTO NTPEP Work Plan for all equipment.
- All equipment calibration records were current and contained the required NTPEP Work Plan details except:
  - Calibration/verification records for micrometer #1 (used in QC testing) and the Muffle Furnace were not presented to the Auditor at the time of the Audit. The calibration data from previous calibration was not backed up electronically and was lost. Both items recalibrated and documented after audit. Created an electronic backup of the current calibration record in event that hard copy goes missing. Also will implement a second manager check on calibration records to ensure all data entered correctly.
  - Certifications from CalIBRATE Co. Inc. were missing the required information on the ID of Calibration/Verification equipment used in the calibration for all weighing scales that the Plant has them calibrate. Also missing were traceability language for the equipment and the procedure used to perform the calibrations. The calibration company did not record the traceability and procedures on the calibration certification document that are required. The company who performed the calibrations has been contacted to modify the documentation of the calibration process. All documents have been supplied with the proper information. Calibration documents will be reviewed upon receipt for compliance.

Audit Report Summary

Root cause
Action
Substantiation
Audit Report

• Summary
• Section Specifics
• CARs
Corrective Action Report

May or may not be accompanied by substantiation. Auditor may not post documents in some cases due to size.
Comparison Data

- Is Statistical Comparison Available?
- Consult Experts for Input
<table>
<thead>
<tr>
<th>Test</th>
<th>Plant Result</th>
<th>TRI Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resin Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density</td>
<td>0.950</td>
<td>0.951</td>
</tr>
<tr>
<td>Melt Index</td>
<td><strong>0.14 g/10min.</strong></td>
<td><strong>0.07 g/10min.</strong></td>
</tr>
<tr>
<td>NCLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipe Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon Black Content</td>
<td>2.28 %</td>
<td>2.30 %</td>
</tr>
<tr>
<td>Inside Diameter</td>
<td>20.93 inches</td>
<td>20.9 inches</td>
</tr>
<tr>
<td>Wall Thickness</td>
<td>0.068 inches</td>
<td>0.069 inches</td>
</tr>
<tr>
<td>Stiffness</td>
<td>39.2 psi</td>
<td>42.0 psi / 41.8 psi</td>
</tr>
<tr>
<td>Flattening</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Brittleness</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Pipe NCLS</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Workmanship</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Joint Integrity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pipe Marking</td>
<td>Pass</td>
<td>Pass</td>
</tr>
<tr>
<td>Pipe Perforations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Inlet Area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Statistical Data Review**

Not available for Pipe Products
Must use judgment and consult with experts
CAR Review

- Substantiation
- Severity
Discrepancies

• Contact Auditor and/or Testing Facility
• Contact Manufacturer
• Contact Technical Committee
Determination of Approval

- “Complete”
- “Compliant”
- “Satisfactory”
NTPEP Pipe Audit Program

PennDOT Use
(HDPE Program)
PennDOT Use of Audit Program

• Used to two distinct functions

  • Initial Product Approval (Pub 35, Bulletin 15 (QPL))
  
  • Ongoing Quality Assurance check
Initial Product Approval

• Manufacturer with product submission must include the most recent NTPEP audit results
• The audit must be finalized with compliant results in all areas.
• Manufacturer submits these audit results as a pre-requisite with product application for initial consideration
Initial Product Submittal

• Any open or un-resolved findings or compliance issues including the random split sample not in compliance with the pipe specification are grounds for suspension and/rejection of the product application.

• The random split sample is considered as the required 3rd party, independent testing required for all initial product submissions.
Ongoing QA/QC Performance

• All manufacturers on QPL are subject to random sampling of their materials at PennDOT’s discretion
• Can be by PennDOT forces or representative at the project or in the plant
• NTPEP audit is considered a random third party sample for PennDOT and the ‘trigger’ for a quality review.
Ongoing QA/QC Performance

• Non-compliance of a sample from a plant audit triggers a review of approval status by:
  – Materials (State Materials Engineer)
  – Bulletin 15 (Product approval)
  – Quality Assurance

• The audit sample non-compliance, sample history and various other QC/QA elements are judged on a case by case basis.
Ongoing QA/QC Performance

- The subsequent review, based upon the nature of the audit non-compliances as well as all other QA factors can result in changes to the manufacturer’s approval status.
- These can include: increased or 3rd party manufacturer QC; PennDOT oversight and/or ultimately removal of product approval from the QPL.
Utilization of NTPEP Audit Data

YOUR Review Process