Post-Consumer Reclaimed Asphalt Shingles in Asphalt Pavement

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History

• Program was started in December 2007
• Greenville Paving & Contracting, Inc. partnered with the Pitt County Transfer Station in Greenville N.C
• 2008 Greenville Paving started putting mix designs together for approval.
• 2009 two pilot projects on resurfacing were done in Division 1 by Greenville Paving and one pilot project was done with OGFC in Division 4 by Barnhill Contracting.
• From 2010-2011 Greenville Paving done varies project on a provisional bases including US 258 in Greene, Lenoir counties.
• The paving industry in our state and the N.C/DOT received reconnection for the US 258 project by being the cover story for the Asphalt Contractor Magazine in December 2010.
Best Practice Guide

• Guide developed to assist interested parties in use of PRAS in Asphalt Pavement
• Based upon practice of other states and NC contractors currently using the material
• It is General Guide
• PRAS users will need to dig deeper into details
Introduction

• Benefits of using PRAS
  – Environmental benefit, saving 10 million tons from landfills annually across the nation
  – Monetary benefit, cost less than virgin liquid
• Similar to using MRAS in Asphalt Pavement
• Requires thorough planning prior to use
• Background information
• Steps to getting started
Composition of Shingles

- Tape; Water = >1%
- Headlap Sand = 7%
- Fiber Glass Mat = 2%
- Asphalt = 18-28%; Filler = 34%
- Granules = 38%
Items involved in using PRAS

- Safety
- Regulations
- Permits
- Asbestos Operations Plan
- Source
- Documentation
- PRAS Processing
- Stockpile Management
- Auditing
Regulations

• NCDOT Specifications
• NCDENR Division of Waste Management
• DHHS Health Hazard Control Unit
• NCDENR Division of Air Quality
Permitting Continued
NCDENR Division of Waste Management

• Landfill permit required?
• Accepting clean shingles, no landfill permit required.
• Sorting waste out of shingles being delivered, landfill permit required.
Asbestos Operation Plan

• Asbestos use in shingles prior to 1980’s
• DHHS Health Hazard Control Unit
• Asbestos Operation Plan
  – Source of shingles documentation
  – Testing of shingles documentation
• Testing by Certified personnel
  – NC Accredited Asbestos Inspector
  – NC Accredited Roofing Supervisor
• Visual inspection of every load
• Testing frequency – 100 tons or less
• Guidelines for Plan in the BPG
Source of PRAS

- Shingles received at the Asphalt Plant from the roofer
- Shingles received at the Asphalt Plant from a county transfer station
- Process shingles received from a shingle recycler or processor
- Proper documentation required in all cases
Documentation

• Source documentation from roofer – standard document in BPG
• Indicate roofing company
• Signed by the roofer
• Address of source
• NESHAP vs NON-NESHAP
• Asbestos testing documentation
• Maintain documentation for 3 years
Permitting
NCDENR Division of Air Quality

• Must modify your asphalt plant air quality permit prior to beginning.
• Must follow source identification and asbestos testing requirements.
• Must maintain source and asbestos testing documentation for 3 years.
• Non-compliance can result in the Asphalt Plant Air Quality Permit being REVOKED!
PRAS Processing

• Clean material, no debris
• Grinding to 100% passing 3/8” sieve
• Removal of nails
• What goes into the mix comes out of the mix
• Corn Flakes and Coffee Grounds
• Follow NCDOT specifications for PRAS, mix, etc.
Stockpile Management

• Separate tested vs untested
• Separate unprocessed vs processed
• Do not climb processed stockpiles with equipment
• Blend with fine aggregate to keep stockpile manageable
Processed Shingles
Auditing the Process

• Proper training of all personnel involved
• Internal auditing by personnel not involved in daily process
• External auditing by NCDENR, DHHS and NCDOT
• Non-compliance can result in the Asphalt Plant Air Quality Permit being REVOKED!
Conclusion

• No shortcuts
• Start properly
• Know the regulations
• Train all plant staff and roofers involved
• Quality processed material
• Follow the specifications
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