

State of Illinois
Department of Transportation
Bureau of Materials and Physical Research
Springfield

POLICY MEMORANDUM

Revised: July 1, 2012

28-10.3

This Policy Memorandum supersedes number 28-10.2 dated April 1, 2011

TO: REGIONAL ENGINEERS AND HIGHWAY BUREAU CHIEFS

SUBJECT: RECLAIMED ASPHALT SHINGLE (RAS) SOURCES

DEFINITIONS:

Asbestos Containing Material (ACM) – Any material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy.

Asbestos Free – Asbestos is not detectable using Polarized Light Microscopy.

Asphalt Shingles – A roof shingle mat of fibers impregnated with asphalt and covered with aggregate.

BUD (Beneficial Use Determination) – Written conditional exemption from Illinois EPA under the authority of Section 22.54 of the Illinois Environmental Protection Act (415 ILCS 5/22.54) that specifically exempts a Source that is providing Post Consumer shingles from Illinois EPA solid waste permit requirements.

Bureau – The Illinois Department of Transportation Bureau of Materials and Physical Research at 126 East Ash Street, Springfield, Illinois 62704-4766

C&D (Construction and Demolition) Debris – Waste including, without limitation, shingle materials from the construction, remodeling, repair, and demolition of structures.

Department – Illinois Department of Transportation

District – The Illinois Department of Transportation District where the Source facility is located.

Extraction/Gradation Testing – Testing that must be performed by a Department prequalified Phase III Construction consultant laboratory, or in-house by a technician that has successfully completed the Department's HMA Level I course utilizing a Department approved lab.

Homeowner – Person supplying Post-Consumer Shingles from their home.

Local Agency – Municipality, county or road district

Illinois EPA – Illinois Environmental Protection Agency

NESHAP – National Emission Standards for Hazardous Air Pollutants

Manufacturer's Salvaged Shingles – Asphalt shingles, tabs, and end runs salvaged directly from a shingle manufacturer.

Paddock – A fenced-in or walled enclosure that can be locked and/or sealed to prevent undocumented removal or addition of new material. This area shall have a surface suitable to prevent soil from contaminating the RAS.

Pre-processed Shingles – Manufacturer's Salvaged or Post Consumer shingles that remain to be ground to Department specifications.

Processed Shingles – Manufacturer's Salvaged or Post-Consumer shingles meeting requirements herein that have been ground to Department specifications.

Polarized Light Microscopy (PLM) – Test method to identify asbestos following EPA 600/R-93/116.

Post-Consumer Shingles (*Tear-Off*) – Shingles salvaged from residential buildings of four or fewer dwelling units and/or single family dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP). Shingles must be collected separately from other general construction or demolition debris at the generation source. Shingles from whole house demolition will not be allowed.

Quality Control Plan – A document provided by the Source outlining proposed operational details to control the equipment, materials, and production methods to ensure the specified product is obtained.

Source – Recycler / Processor who processes shingles for use in Hot Mix Asphalt (HMA) and is authorized by the Illinois EPA and approved by the Department.

State – Illinois

Stockpile – Pile of pre-processed shingles limited in size by the Illinois EPA BUD or Permit.

Supplier – An individual or business that brings shingles into the facility for the production of RAS.

Direct suppliers can be:

- Roofing Company
- Homeowner

Indirect suppliers (must be listed in QC Plan):

- Construction/Demolition Recyclers
- Salvager from new shingle manufacturer

Tipping Pad – Designated paddock for unloading incoming loads of shingles prior to asbestos sampling.

Training – An educational program specific to the job duties described in the quality control plan. The education program shall include specific position responsibilities and the type of training required. For positions that require asbestos training, the education program shall be developed for the specific methods being used by the Source and presented by licensed specialist knowledgeable in the safe handling, usage and disposal of this material.

1.0 **PURPOSE**

1.1 To establish a procedure whereby the Reclaimed Asphalt Shingle (RAS) production of a Source will be conducted in accordance with applicable environmental laws and regulations in a manner that results in a product that may be accepted for use on State or Local Agency projects based on a uniform certified QC program. This policy shall be referenced with all applications for Illinois Environmental Protection Agency (Illinois EPA) permits (Bureaus of Air, Land and Water) or for applications of BUD permits required to operate a RAS processing facility.

2.0 **SCOPE**

2.1 This procedure shall apply to all Sources which desire to supply RAS for incorporation into Hot Mix Asphalt and Warm Mix Asphalt (HMA) mixes for State and Local Agency projects.

3.0 **REQUIREMENTS FOR APPROVAL**

3.1 Potential Sources, whether in or outside of the State, shall have received a BUD or permit authorizing them to process shingles to Department Specifications from the Illinois EPA.

3.2 Potential Sources requesting Department approved status for their facilities shall make application in writing to the Bureau. This application shall include:

3.2.1 An initial certified statement of compliance with the applicable provisions contained in Section 4.

3.2.2 A complete, detailed QC Plan following the Model QC Plan (Attachment 1 & Section 6) and history if applicable. The QC Plan will be reviewed and approved by the Bureau.

3.2.3 A copy of the BUD or permit from the Illinois EPA for that facility.

3.3 After the Source receives a permit or BUD from the Illinois EPA and the facility has been constructed, the Source shall contact BMPR to schedule an onsite inspection.

3.4 A Source with a BUD or permit, an approved QC Plan, certified statement, and passing onsite inspection by the Bureau, will be placed on the Department's approved Source list for RAS.

4.0 **SOURCE RESPONSIBILITY**

4.1 The Source shall submit annually for District approval by January 31:

4.1.1 A QC Plan containing:

- General Company information
- Organizational chart
- Contact information
- Location of Processing site
- Flow Diagram including stockpile signage and location of signs
- Capacity of processing units/equipment at the site
- Average/anticipated tons ground per hour (TPH)
- Final Products
- Manpower at the site (i.e. foreman, manager, tester, etc.)
- Ticket information (copy to be provided)
- Corrective action procedures in writing if applicable
- Any changes unique to the contract (changes in plant, personnel, flow diagrams)
- Any updates to previous documents

4.1.2 The Reclaimed Asphalt Shingle (RAS) Source Certification form (BMPR RASCRT, <http://www.dot.il.gov/materials/materialforms.html>) as seen in Attachment 2.

4.1.3 A copy of current BUD approval or Illinois EPA permit.

4.2 Process and test RAS furnished to State and Local Agency projects according to the Source QC Plan and be in compliance with the material requirements specified in the Department's RAS specification before shipment.

4.3 Transport, stockpile, and process Manufacturer's Salvaged shingles separately from Post-Consumer shingles.

4.4 For Post-Consumer shingles:

4.4.1 Shingles shall be delivered only by trained haulers or a Homeowner.

4.4.2 All incoming loads of Post-Consumer shingles shall be quarantined until all asbestos testing is completed and found to be asbestos free.

4.4.3 The entire quarantined stockpile shall be immediately removed from the premises if any test result indicates asbestos is present within the quarantined stockpile.

4.5 The Source shall reimburse the Department for on-site inspection costs associated with the initial Bureau and subsequent District inspections if the Source is located more than 50 miles outside the state line and inspections cannot be completed within one day's normal work hours of 8:00 A.M. to 4:30 P.M. The Source shall

pay for transportation, per diem (meals), lodging and incidental travel costs incurred by the Department's inspector. The costs shall not exceed the limits established by the Department's travel regulations. At the Department's option, sampling arrangements may be made through a mutually approved private inspection agency.

- 4.6 The Source shall provide to the HMA Producer written certification that the RAS has been produced in compliance with all State and Federal laws, statutes and this policy. The certification shall include whether it was classified as Post-Consumer or Manufacturer's Salvaged RAS. When processed Post-Consumer RAS is supplied, the HMA Producer shall also be provided with written certification from the Source that the Source has been issued all the necessary permits and authorizations from Illinois EPA and is operating in compliance with these authorizations.
- 4.7 The Source shall clearly identify each paddock of Manufacturer's Salvaged and Post-Consumer shingles, processed RAS from Manufacturer's Salvaged and Post-Consumer shingles, and storage areas for other recyclable materials (such as nails and aluminum trim) and waste as referenced in the QC Plan. The Source shall maintain each paddock to control the flow of material.
- 4.8 The Source shall post and maintain staff and Suppliers' training records that are immediately accessible to any state inspector during hours of operation.

5.0 DOCUMENTATION

- 5.1 The Bureau will maintain a current list of approved RAS Sources and issue a unique Producer/Supplier number. The list will include the name of the Source, the Source code number, the location of the Source, and the Source's qualified products. The Bureau will update the list when the status of any Source changes. The approved RAS Source list is available on the Internet. To access, log onto the following IDOT website: <http://www.dot.il.gov>. The list is located under: Doing Business/Materials/Approved Lists for Materials.
- 5.2 HMA contractors receiving material from a Source whose certification has been revoked will be notified immediately by the District.
- 5.3 The HMA producer incorporating RAS in mixes shall maintain for a period of three years bills of lading and material certification from the RAS Source.
- 5.4 During production, the Source shall test the processed RAS, and provide results to the District, according to one of the following frequencies:
- A minimum of 1 dry shake gradation every 500 tons.
 - Asphalt binder content, washed extracted gradation, and dry shake gradations at the frequency outlined in the IDOT reclaimed asphalt shingles specifications.
- 5.5 RAS material at the HMA plant shall be identified by the bill of lading accompanying the shipment from the Source.

6.0 ELEMENTS OF THE QUALITY CONTROL PLAN

- 6.1 The purpose of the QC Plan is to document the Source's process of control for recycling Manufacturer's Salvaged and Post-Consumer asphalt shingles into raw ingredient material that meets Department requirements for use in HMA applications.
- 6.2 The Source QC Plan shall contain the following (see Attachment 1):
- 6.2.1 The QC Plan shall declare all types of material that will be accepted at the facility. The allowable types are:
- Post-Consumer shingles.
 - Manufacturer's Salvaged shingles.
- 6.2.2 Detail the process for inspection of incoming loads of Manufacturer's Salvaged shingles. For Post-Consumer shingles, detail the process for inspection, sampling, testing and method of quarantine of incoming loads. Include the following:
- Source inspection personnel duties, responsibilities and training.
 - Describe criteria for accepting and rejecting loads from Suppliers.
 - A plan for random asbestos sampling and submittal to a laboratory accredited through the National Institute of Standards and Technology (NIST) if the Source is conducting required PLM testing on site through its own certified technician.
 - Provide a plan view diagram showing flow of the processing operation with labels identifying the various components.
- 6.2.3 List training and qualification of staff and Suppliers. Records shall be kept of the dates of training and of the names of employees trained. Original certificates of training shall be available upon request.
- 6.2.4 The QC Plan shall identify the Source location, laboratory names and locations, and a complete description of the types and frequencies of the tests to be performed.
- 6.2.5 The frequency of testing the Source will use to monitor production as outlined in Section 5.4.
- 6.2.6 Attach an outline of required training for:
- Source asbestos inspectors for incoming loads.
 - Source sorting personnel.
 - Suppliers/Trained Haulers. This shall include the process for accepting shingles delivered by the Homeowner.
- 6.2.7 Provide an Occupational Safety and Health Administration (OSHA) approved personnel protection plan for Source personnel as well as Department inspectors. Air monitoring of the equipment operators during the grinding of any Post-Consumer shingles shall be completed by a certified industrial hygienist (CIH). The QC Plan shall identify the air sampling procedures and frequencies for initial and periodic exposure assessment (personal breathing zone air sampling).

6.2.8 All approved addendums to the QC Plan in the preceding year shall be incorporated in the annual submittal. **[Note: Any changes to the QC Plan may require prior amendment of the BUD or a permit modification]**

7.0 OPERATION OF SOURCE FACILITY

7.1 A sign shall be posted at the entrance to the Source facility indicating the name of the facility and hours of operation.

7.2 Access to the facility shall be controlled by a gated entrance and exit. The gate shall be locked when facility personnel are not present.

7.3 Source sorting personnel shall attend a training session conducted by a certified asbestos inspector to learn to identify and remove unacceptable material prior to processing as outlined in the QC Plan.

7.4 Incoming loads shall only be accepted from a Supplier/Homeowner on the Source's list (BMPR RASSPL, <http://www.dot.il.gov/materials/materialforms.html>) as seen in Attachment 3. Upon entrance to the facility, incoming loads shall be inspected for unacceptable materials (Attachment 4) by a certified asbestos inspector familiar with the requirements and operation procedures of the facility and trained as required by the accepted QC Plan.

7.5 Unloading and storage of the Manufacturer's Salvaged and Post-Consumer shingles will each be separately confined to approved designated areas.

7.6 Post-Consumer shingles shall be tested according to the following upon entry to the facility:

7.6.1 During start-up of the Source, incoming loads shall be tested by PLM at a frequency of 1 sample per 10 tons for the first 1000 tons or 1 sample per load for the first 100 loads. Start-up testing frequencies are not required if there is another approved Source in the County that has completed start-up.

7.6.2 If asbestos is detected during start-up frequencies, the Source shall discard the Stockpile containing the contaminated shingles and restart the sampling frequency of 1 sample per 10 tons for a further 1000 tons.

7.6.3 If no asbestos is detected for any of the 100 tests completed during start-up, the Source shall test all future incoming loads by PLM at a minimum frequency of 2 samples per 250 tons or 1 sample per 100 tons.

7.6.4 If asbestos is detected at any time during the testing process, the Stockpile containing the asbestos contaminated shingles shall be rejected and properly disposed of in a landfill.

7.7 Post-Consumer shingles shall be quarantined in a paddock until acceptable results from the asbestos testing are received.

7.8 All materials potentially containing asbestos including caulks, cements, tars and other sealants shall be removed during the sorting process.

- 7.9 Manufacturer's Salvaged shingles shall be delivered with no unacceptable material (Attachment 4).
- 7.10 Loads consisting of sorted, preprocessed, Post-Consumer shingle material ready for processing shall not exceed a cumulative total weight of 1.5 percent of felt attached to shingles, metal flashing, glass, rubber, paper, plastic, rolls or sheets of felt, or other unacceptable material (Attachment 4). This total does not include nails that are attached to the shingles and removed for recycling in conjunction with the grinding process.
- 7.11 Manufacturer's Salvaged and Post-Consumer shingles shall not be processed into the same Stockpile.
- 7.12 Processing of sorted loads of Manufacturer's Salvaged and Post-Consumer shingles shall be conducted on-site with an industrial grinder. The industrial shingle grinder shall utilize water nozzles for dust control and to reduce the heat build-up during the grinding process as needed. The final ground product shall meet the Department specifications.
- 7.13 The final Processed Shingles shall be free of visible nails and have at most 0.5 percent unacceptable material (Attachment 4). After 1/1/13 Processed Shingles shall be stored on a well drained, all weather surface that prevents contamination of the final product. Unacceptable materials shall not exceed a cumulative total of 0.5 percent by weight based on material retained on the 4.75 mm (No. 4) sieve.
- 7.14 During stockpiling, care shall be taken to avoid segregation due to wind or other causes.
- 7.15 Mechanically blending manufactured sand (FM 20 or FM 22) up to an equal weight of processed Post-Consumer or Manufacturer Salvaged RAS using Department approved calibrated feeders will be permitted to improve workability.
- 7.16 The following documentation shall be collected, maintained in bound or electronically imaged chronological files on site for a minimum of three years, and made available to the regulatory agency upon request:
- Original Supplier Certification Forms (Attachment 3, BMPR RASSPL, <http://www.dot.il.gov/materials/materialforms.html>) shall be compiled daily
 - Tonnage of Manufacturer's Salvaged and Post-Consumer shingles accepted shall be compiled monthly.
 - Tonnage of Post-Consumer shingles initially accepted but subsequently rejected and disposed of shall be compiled monthly.
 - Tonnages of processed RAS shall be compiled monthly.
 - Tonnages of preprocessed and processed Manufacturer's Salvaged and Post-Consumer shingles stored and retention times shall be compiled monthly.
 - Training records shall be compiled for each training session.
 - Copies of all environmental permits, BUDs and other authorizations issued by the Illinois EPA.

- 7.17 Copies of bills of lading shall accompany each load and be presented to the HMA plant for filing. The bills of lading shall contain the following information:
- Name and location of Source.
 - Sequence number identifying the shipment.
 - Consignee & destination.
 - Date of shipment.
 - Type of material. (Post consumer or Manufacturer's Salvaged RAS).
 - Gross, tare and net weights.
- 7.17.1 If the Source chooses to adopt the testing frequency outlined in the IDOT RAS Specifications, the initial gradation and asphalt content averages, as well as the properties of the transported stockpile, shall be included on the bill of lading.
- 7.18 Regulatory agencies shall be allowed to conduct random inspections of the facilities during normal working hours as deemed necessary and as otherwise authorized by law including C&D facilities supplying shingles to the Source.
- 7.19 Any changes to the general operation of the Source facility as documented in the QC Plan will require prior Bureau notification and approval and may require modification to the BUD or permit issued by the Illinois EPA prior to implementation.

8.0 **REVOCATION OF A SOURCE'S APPROVAL**

- 8.1 The Department may revoke a Source's approval for any of the following reasons:
- 8.1.1 An approved Source that fails to timely renew or to comply with the conditions of a permit, BUD or other authorization issued by the Illinois EPA or Department's criteria for approved status.
- 8.1.2 Unscheduled visits will be made to all Sources periodically by the Department. If an approved Source is not in compliance with provisions listed in Section 4, or fails to follow the Bureau's RAS policy, specification or its approved QC Plan, the Source will be removed from the approved list.
- 8.2 The Source may re-apply for approval status after 1 year. Re-application shall be in writing to the Bureau and include the specific steps taken to correct the cause for loss of certification.



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Model QC Plan

Company Name: _____
 Address: _____
 Contact: _____

Source/Facility Address: _____
 Phone Number: _____
 Hours of Business: _____

Description: Include plan view drawing of facility as attachment & identify on drawing: 1) what areas are paved, 2) paddock contents, 3) means of containment (i.e. fence, wall, locked gate, other security devices etc....).

In space provided list facility area, paddock areas & wall height).

A. Personnel (list full name, and training received for each title listed):

Title	Name	Training Received
Certified Inspector		
Sorter		
Certified Asbestos Inspector*		

* - If not an employee, list company employed under name.

B. Suppliers (list full name, company and date approved for each approved delivery person):

Name	Company	Date Approved

C. Material to be processed: Post-Consumer, Manufacturer's Salvaged, or both. (Circle one):

D. Outline Process for inspection, sampling & asbestos testing of incoming loads:

E. Laboratory Testing (name, location, contact person, phone number):

Testing (e.g. dry shake gradation, extraction gradation & AC content, contaminants, asbestos etc.).

Test	Test Method	Frequency

F. Outline process for record keeping & storage documentation (i.e. paddock contents), include receiving & shipping dates and file storage location:

(Attachment 1)

G. Detailed processing plan (include: equipment used, products made, use of storage, scales etc...). Provide a plan view diagram showing the flow of the processing operation with labels identifying the various components:

H. Example Bill of Lading (include as attachment)

I. Describe all personnel protection equipment needed for Department inspectors.

J. Corrective actions (when required).

(Attachment 1)



The following individual certifications shall be initialed with a full signature at the bottom by a responsible officer of the Source with authority to bind the Source. This certification statement shall also be notarized.

**All Sources
must fill out
this section.**

Reclaimed Asphalt Shingles (RAS): *Please enter your initials into the following statements*

I, _____, certify that the RAS will be produced from shingles not classified as Asbestos Containing Material (ACM).

I, _____, certify that all RAS to be furnished to State and Local Agency projects will be sampled and tested according to the Source Quality Control Plan and be in compliance with the material requirements specified in the Department's RAS specification before shipment.

**NOTE: Only
fill out this
section if you
will be
processing
Post-
Consumer
Shingles.**

Post-Consumer Shingles: *Please enter your initials into the following statements.*

I, _____, certify that only Post-Consumer Shingles that: (1) are not subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and (2) will be maintained separately from other C&D Debris or waste will be accepted for processing; any other type of shingle will be rejected removed from the premises.

I, _____, certify that all Post-Consumer Shingles will be managed and processed by trained personnel.

I, _____, certify that all shingle types will be sampled and tested for asbestos according to the Source Quality Control Plan.

I, _____, certify that all incoming loads of Post-Consumer Shingles will be quarantined until all asbestos testing is completed and found to be asbestos free.

I, _____, certify that all shingles within a quarantine Paddock will be immediately removed from the premises if any sample taken from within the quarantine Paddock tests positive for asbestos by the PLM method.

**Responsible officer for the Source with authority to
bind the Source:**

Printed name

Signature

Date

Notary:

Signature

Date



**Supplier Certification Form for
Manufacturer's Salvaged and
Post-Consumer (Tear-Off) Asphalt Shingles**

PART I: Supplier Company	
<i>Please indicate which best describes the Supplier:</i>	
<input type="checkbox"/> <- Manufacturer Salvager	<input type="checkbox"/> <- C&D
<input type="checkbox"/> <- Roofing company	<input type="checkbox"/> <- Homeowner
Supplier name:	
Supplier phone:	
Supplier e-mail:	
Supplier address:	

PART II: Supplier Rep (unless same as PART I)	
Rep's name:	
Rep's title:	
Rep's phone:	
Rep's e-mail:	
Rep's address (if not same as Supplier main address):	

PART III: Shingle Verification (Please check the following boxes as directed.)	
Mark all that apply.	<i>I the undersigned certify that:</i>
	<input type="checkbox"/> I have completed all appropriate hauler training. <input type="checkbox"/> All shingle material delivered is from an approved Supplier cited in the Source's Quality Control Plan.
Fill out if you selected "C&D" or "Roofing Company" in PART I.	<i>Please check ONLY ONE of the following options:</i>
	<input type="checkbox"/> (1): Asbestos test results are included, indicating all material is Asbestos Free. <input type="checkbox"/> (2): Asbestos testing has been initiated but is not complete.

PART IV: To be completed by Trained Hauler/Homeowner		
_____	_____	_____
Trained Hauler/Homeowner (Print name)	Trained Hauler/Homeowner (Signature)	Date

For Source Use Only: <i>One or two certified asbestos inspectors may fill out this section over time.</i>		
Load status: <input type="checkbox"/> <-Accepted	<input type="checkbox"/> <-Rejected	Reason for rejection: _____
Delivery Vehicle License: _____		
_____	_____	_____
Certified asbestos inspector (Print name)	Certified asbestos inspector (Signature)	Date
Results of asbestos testing (attached): <input type="checkbox"/> <-Asbestos Free <input type="checkbox"/> <-Asbestos found		
_____	_____	_____
Certified asbestos inspector (Print name)	Certified asbestos inspector (Signature)	Date

**Suppliers List of Acceptable and Unacceptable Materials
For
Recycling of Post-Consumer Tear-off Asphalt Shingles**

“Acceptable” materials

Include these items:

- Shingles
- Felt attached to shingles
- Nails

All other materials are “Unacceptable”

Unacceptable materials include, without limitation:

- Asbestos and asbestos-containing materials
- Wood, ply wood and sheeting
- Wire
- Cans
- Metal flashing, gutter, etc
- Rolls of sheets of felt paper
- Plastic wrap, buckets
- Paper waste
- Garbage trash or other waste materials
- Flat roofing shingles
- Rubber membrane roofing systems
- Built-up asphalt roofing
- Caulk
- Sealant
- Rubber gaskets