

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

POLICY MEMORANDUM

Revised: April 1, 2011

28-10.2

This Policy Memorandum supersedes number 28-10.1 dated March 23, 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.

Clean Loads – Sorted, pre-processed, Post-Consumer shingle material ready for processing under a BUD permit that contains not more than a cumulative total weight of 1.5% of felt attached to shingles, metal flashing, glass, rubber, paper, plastic, rolls or sheets of felt, or other unacceptable material excluding nails that are attached to shingles.

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 and a Department approved lab.

Local Agency – Municipality, county or road district

Lot – A quantity of either Post-Consumer or Manufacturer's Salvaged shingle material not greater than 1000 tons contained within a secured paddock.

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.

Mixed Loads – Loads of construction debris containing shingles supplied to a solid waste permitted site.

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. Laboratories shall be accredited through the National Institute of Standards and Technology (NIST).

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

State – Illinois

Sublot – One truck load of preprocessed Manufacturer's Salvaged or one "Clean" truck load of Post-Consumer, shingle material.

Supplier – Originating manufacturer of salvaged asphalt shingle or person/company supplying Clean Loads of Post-Consumer shingles to Sources. Recyclers cannot be Suppliers unless they are included in the Source's Bureau approved QC Plan and are authorized by the Illinois EPA.

Tipping Pad – Designated quarantine paddock for unloading incoming loads of shingles.

Training – An educational program specific to the job duties described in the quality control plan. The education program shall include how a specific position fits into the overall quality plan and the position responsibilities. 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 may 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 HMA mixes for State and Local Agency projects.

3.0 **SOURCE RESPONSIBILITY**

3.1 Submit annually to the Bureau:

3.1.1 A detailed QC Plan containing information specified herein to the Bureau for approval (Attachment 1).

3.1.2 A certified statement that (see Attachment 2):

3.1.2.1 All of the processed RAS from the Source is asbestos free.

3.1.2.2 RAS furnished to State and Local Agency projects shall be processed and tested according to the Source QC Plan and be in compliance with the material requirements specified in the Department's RAS specification before shipment.

3.1.2.3 Manufacturer's Salvaged shingles shall be transported, stockpiled, and processed separately from Post-Consumer shingles.

3.1.2.4 For Post-Consumer shingles:

- 3.1.2.4.1 Only shingles that have been directly removed from residential buildings of four or fewer residential dwelling units and/or from single family dwellings not subject to NESHAP and that have been maintained separately from other C&D debris or waste will be accepted for processing.
- 3.1.2.4.2 Shingles shall be delivered only by trained haulers.
- 3.1.2.4.3 All incoming loads of Post-Consumer shingles shall be quarantined until all asbestos testing is completed and found to be asbestos free.
- 3.1.2.4.4 The entire quarantined stockpile shall be immediately removed from the premises if any test result indicates asbestos is present within the quarantined stockpile.
- 3.1.2.5 Certification shall include the Department's required wording regarding material approval, contractual status and performance standards. This certification shall be signed by a responsible officer of the Source with authority to bind the Source to the contract. This certification statement shall also be notarized.
- 3.2 The Source shall be responsible for on-site inspection costs associated with the initial Bureau and subsequent District inspections. The Source shall be responsible for travel expenses if it is located more than 50 miles outside the state line when 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.
- 3.3 The Source shall develop a tracking system to uniquely identify each Lot of material produced that associates production date(s), gradation, asphalt content and RAS type. Processed RAS shall be stored in paddocks that identify the current Lot and not intermingled with other Lots. The Lot number shall be identified on shipping tickets.
- 3.4 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 Lot identifiers of the material supplied and 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.

- 3.5 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.
- 3.6 The Source shall post and maintain staff and Suppliers' training records that are immediately accessible to any state inspector during hours of operation.

4.0 **REQUIREMENTS FOR APPROVAL**

- 4.1 Potential Sources requesting Department approved status and Illinois EPA permitting for their facilities shall make application in writing to the Bureau. This application shall include:
- 4.1.1 An initial certified statement of compliance with the provisions contained in Article 3.1.2.
- 4.1.2 An acceptable QC Plan and history if applicable. The QC Plan will be reviewed by the Department and Illinois EPA.
- 4.2 When an acceptable QC Plan has been submitted, the Bureau will schedule an on-site inspection. If acceptable, the Bureau will provide notification to the Illinois EPA of the existence of a Source in conformance with this policy. The Bureau will place the Source on the Department's approved Source list for RAS and send an approval letter to the Source.
- 4.3 The Source will be responsible for submitting the appropriate permit or BUD application including QC Plan to the Illinois EPA. The Source shall provide to the Bureau proof that an Illinois EPA permit or BUD has been obtained within 90 days of receiving the Department's approval letter. Failure to provide a permit or BUD will result in removal from the approval list.
- 4.4 No shipment shall be made unless the Source has a valid permit or BUD from the Illinois EPA and is listed on the Department's approved Source list for RAS.

5.0 **ACCEPTANCE PROCEDURES**

- 5.1 RAS material at the HMA plant shall be identified by the bill of lading accompanying the shipment from the Source.

6.0 DOCUMENTATION

- 6.1 The Bureau will maintain a current list of approved RAS Sources from IDOT certified and Illinois EPA permitted Producers/Suppliers. 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 certified processed 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.
- 6.2 HMA contractors receiving material from a Source whose certification has been revoked will be notified immediately by the Department's district office.
- 6.3 The HMA producer shall maintain for a period of three years bills of lading and material certification from the RAS Source.
- 6.4 The Source shall provide to the District weekly test results for asphalt binder content, maximum theoretical gravity and extracted gradation of the processed RAS.

7.0 ELEMENTS OF THE QUALITY CONTROL PLAN

- 7.1 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.
- 7.2 The Source QC Plan shall contain the following (see Attachment 1):
- 7.2.1 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.
- 7.2.2 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.
 - Provide a plan view diagram showing flow of the processing operation with labels identifying the various components. See attachment X for a typical plan view diagram of a facility.
- 7.2.3 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.

7.2.4 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.

7.2.5 Identify method to be used to notify the HMA Producer's QC Manager in the event of decertification.

7.2.6 Attach an outline of required training for:

- Suppliers/Trained Haulers
- Source asbestos inspectors for incoming loads
- Source sorting personnel

Training of the Source's staff and of the Supplier's personnel on acceptable and unacceptable materials shall be completed by the site certified asbestos inspector(s). Training materials shall be made available upon request.

7.2.7 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).

7.2.8 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]**

8.0 OPERATION OF SOURCE FACILITY

8.1 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.

8.2 All pre-processed shingles in quarantine pending test results and processed RAS shall be stored in confined paddocks to prevent mixing or contamination of the piles.

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

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

8.5 Facility security fencing shall be installed to prevent windblown material from leaving the facility.

- 8.6 Incoming loads shall only be accepted from a Trained Hauler/Supplier on the Source's list (see Attachment 3). Incoming loads shall be inspected for unacceptable materials (see 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.
- 8.7 Unloading and storage of the Manufacturer's Salvaged and Post-Consumer shingles will each be separately confined to approved designated areas with all weather surfaces.
- 8.8 Manufacturer's Salvaged shingles shall be delivered with no unacceptable material (see Attachment 4).
- 8.9 Post-Consumer shingles shall be quarantined in a paddock until acceptable results from the asbestos testing are received.
- 8.10 Storage of the RAS shall be a minimum of 100 feet from waters of the U.S.
- 8.11 All materials potentially containing asbestos including caulks, cements, tars and other sealants shall be removed during the sorting process.
- 8.12 Storage time of sorted pre-processed shingles shall be minimized.
- 8.13 Clean loads consisting of sorted, preprocessed, Post-Consumer shingle material ready for processing shall not exceed a cumulative total weight of 1.5% 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.
- 8.14 Unacceptable material separated from shingles shall be evaluated for each pre-processed Lot by weighing all of the unacceptable material collected per Lot and dividing it by the total Lot tonnage to determine percent unacceptable materials. Unacceptable material shall then be disposed of at a permitted disposal facility within 72 hours or transported off-site for recycling within 45 days unless a longer period is authorized by the regulatory agency. Records shall be kept to document compliance according to requirements specified herein.
- 8.15 Manufacturer's Salvaged and Post-Consumer shingles shall not be processed into the same stockpile.
- 8.16 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 be reduced to a size that meets owner/agency specifications for use in HMA applications.

- 8.17 The final processed, Post-Consumer shingle product shall be free of visible nails and have at most 0.5% unacceptable material (see Attachment 4). Unacceptable materials shall not exceed a cumulative total of 0.5% by weight based on material retained on the 4.75 mm (No. 4) sieve.
- 8.18 Storage of the final processed RAS should be minimized. RAS stockpiles shall not exceed 5,000 tons (10,000 cubic yards) and shall be delivered to the end user within four months after processing unless a longer period is authorized by the regulatory agency. Records shall be kept to document compliance with this requirement.
- 8.19 Processed Post-Consumer and Manufacturer Salvaged RAS may individually be mechanically blended with 5 percent FA20 manufactured sand using Department approved calibrated feeders.
- 8.20 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) 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.
 - Records documenting unacceptable material storage times.
- 8.21 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.
 - Lot number(s) from which material was drawn.
 - 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.
- 8.22 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 processor.
- 8.23 Any changes to the general operation of the Source facility as documented in the QC Plan will require Bureau approval and may require modification to the BUD or permit issued by the Illinois EPA prior to implementation.

9.0 **REVOCAION OF A SOURCE'S APPROVAL**

9.1 The Department may revoke a Source's approval for any of the following reasons:

9.1.1 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.

9.1.2 Unscheduled visits will be made to all Sources periodically by the Department. If an approved Source is not in compliance with certifications listed in 3.1.2 herein, or fails to follow the Bureau's RAS policy, specification or its approved QC Plan, the Source will be removed from the approved list.

9.2 The Source may re-apply for approval status at the end of the revocation period, which is one year, and a one year probationary period. Re-application shall be in writing to the Bureau and include the specific steps taken to correct the cause for loss of certification.



David L. Lippert, P.E.
Engineer of Materials
and Physical Research

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 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.). At a minimum, processed RAS shall be tested at least once every 250 tons to verify 100 percent of the RAS passes the 3/8 inch (9.5 mm) sieve and 93 percent passes the #4 (4.75 mm) sieve based on a dry shake gradation.

Test	Test Method	Frequency

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

G. Name of Landfill for all waste materials (include address & phone):

H. 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:

I. Example Bill of Lading (include as attachment)

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

(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 and immediately 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 free of ACM.

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 qualifies as ACM.

**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 <input type="checkbox"/> <- C&D <input type="checkbox"/> <-Roofing company	
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.)

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

PART IV: Address(es) where Shingle Scrap originated and # of layers present (staple additional items on separate sheet).

<p>1. _____</p> <p>_____</p> <p style="text-align: right;"># Sh. Layers: _____</p>	<p>2. _____</p> <p>_____</p> <p style="text-align: right;"># Sh. Layers: _____</p>
--	--

PART V: To be completed by Trained Hauler

Trained Hauler (Print name)	Trained Hauler (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