

3rd Asphalt Shingles Recycling Forum
Thursday, November 01, 2007
Pre-Forum Roundtable –
Notes from Group B -- Environmental Officials

AGENDA

8:30	Convene Explanation of Roundtable Purpose and Goals, Agenda Review Introductions
8:45	FOUNDRY SAND Topics: <ol style="list-style-type: none"> 1. Foundry sand as landfill cover. Consideration of silica's carcinogenic properties? 2. Is there potential for metals recovery from foundry sand? Dakota County, MN is considering processing C&D and Industrial waste for metals recovery.
9:00	Round Robin: Brief Status of Shingle Recycling in your State
9:15	ASPHALT SHINGLES Topics: <ol style="list-style-type: none"> 1. The Numbers <ol style="list-style-type: none"> a. Amount of tear-off shingles annually (national and state estimates)? b. Percentage of tear-offs going to landfill (national and state estimates)? c. How will recycling be monitored? What info will be available to gauge success?
9:30	<ol style="list-style-type: none"> 2. Environmental Issues <ol style="list-style-type: none"> a. Asbestos: what do we really know about asbestos in tear-offs, roofing underlayment, mastics? Is it a concern? How much is a concern? Regional differences in Canada and US? Air testing during shredding? What kind of testing, frequency of testing is warranted for HMA given that exposure is limited? b. Issues related to recycling pavement containing tear-offs?
10:00	BREAK for 15-20 minutes
10:15	<ol style="list-style-type: none"> 3. Engineering & Performance Issues <ol style="list-style-type: none"> a. Agreeable, acceptable % of tear-off shingles in HMA that poses little/no performance issues? b. Agreeable, acceptable % in road base? c. Can more be used in "light duty" mixes for low-strength applications like bike paths, parking lots? d. Impacts of tear-offs on pavement recycling equipment, process? e. Meeting asphalt specs using recycled shingles or parts of the shingle?
10:35	<ol style="list-style-type: none"> 4. Recycling Market Development <ol style="list-style-type: none"> a. Beyond the BUD: encouraging recycling. Innovative market development strategies for use of shingles in HMA? b. Market potential for use of shingles in transportation sector (national and state estimates)? c. How to engage DOTs? What type of project is best for demonstration purposes, minimizing risk? d. Experience of failed demonstration projects with shingles in HMA? e. Beyond the BUD: pursuing DOT specifications f. Infrastructure (collection and processing) challenges to shingle recycling? g. Technology to separate asphalt from shingles? h. Separating used shingles into various products (e.g., Nova Scotia)
11:15	Other Hot Topics or Issues of Concern? Wrap Up
11:30	Break for Lunch

Julie Gevrenov (USEPA), Facilitator, made introductory remarks.

Foundry Sand Discussion

Issue 1: Foundry sand as landfill cover. Consideration of silica's carcinogenic properties? Minnesota had question regarding landfill application as daily cover. They used a risk-based model, took samples and found no problem. Copy of report may be available. MN seems to be ahead of the others in this respect.

See also IL DNR Degree of Hazard program.

Issue 2: Is there potential for metals recovery from foundry sand? Dakota County, MN is considering processing C&D and industrial waste for metals recovery. No input from group. Nothing else discussed.

Question: Who recycles FS from small foundries? (WI)

Minnesota: Landfilling is relatively cheap, resources are an issue for the small foundries, but some have characterized their waste. MN has funded recycling market development (RMD) in this area in the past, but priorities are now more in the shingles area.

Minnesota: Some goes to LFs for daily cover

Arkansas asked about tipping fees and number of landfills to get a sense of other states.

Commercially-owned LFs in WI charge less than county-owned. Questions about percentage of tipping fees that comes back to the state coffers?

Tear-Off Shingles Discussion

Round Robin: Give brief Status of shingle recycling in your state. BUD or no BUD, DOT spec or no spec. Any processors? Any demonstration projects? What's the tipping fee (distinguish between C&D and MSW)?

Virginia: BUDs are on case-by-case basis. Materials go to wherever is closest. \$30-60 tipping fee range. No demo projects.

Montana: Tipping fees are \$23-30. Folks are claiming to recycle, and others want to, but the state wants to get a handle on that. They want to start a demo, and they're trying to get ideas.

Michigan (as reported by Michigan State professor): Regulator tried to start a shingles recycling program, but state DOT has not been interested. Tipping fees are \$18-30.

Indiana: There is a shingle recycling project. Shingles go to a paving company; another project pending for tear-offs. *Any type of certification process regarding single-layer or double-layer?.....nothing formal.* RMD grant program also available. Tipping fee \$40-50/ton range, so some incentive to take to a recycler.

Minnesota: As long as shingles are to be reused, no permitting required for asphalt. Project specs are requiring 5% of manufactured scrap shingles in mix design – virgin asphalt is softer. Manufactured scrap shows cracking pretty quickly if not mixed with virgin. MN has been working in this area for awhile and has lots of experience. The Minneapolis bridge failure has slowed down shingles recycling recently (state staff focused exclusively on bridge). MN giving \$50K to DOT for a mix design with a goal towards DOT developing a new state spec.

Regarding asbestos: 12,000 samples of manufactured scrap had a small amount of asbestos, not to worry. Stay tuned for Jon Powell's presentation.

\$35/ton tipping fee

Ohio: Beneficial use being added to state surface water program. Mentioned the new C&D regs in the state.

Maine: Recycling shingles since 1994. No landfill space and you can't build new landfills. \$65-100 tipping fees. No shingle manufacturers, so manufactured tear-offs are used, and folks are concerned about asbestos. Tough sell with state DOT because of the cracking issue in a cold climate. *If not to DOTs, then where?* bike paths, driveways, parking lots

Canada (Natural Resources Canada/Federal gov't rep.): C&D goes to private LFs (lower fees). Low tipping fees. About 1.25 M tons shingles generated in Canada annually; about a tenth of what's generated in the USA. Most not being recycled, but the economics work to the favor of recycling.

Nova Scotia: Energy recovery rates are \$25-90/tons for C&D, \$75/ton for MSW. They use shingles with cellulose backing, not fiberglass.

Arkansas: Same DOT issues. Currently recycling tear-offs in Arkansas. Solid waste districts in 75 counties. No commercial grinders. Searching for markets. TX seems to have better luck. Tipping fees \$22-35, commercial or municipal.

Region 4: \$35 or less tipping fees generally in R4 states.

Illinois: No shingle recycling program in IL. Same DOT issues in IL.

Vermont: Tipping fees \$90-100/ton (C&D in the \$90 range, and MSW in the \$100 range). Shingles have been successful in gravel roads.

Wisconsin: Tipping fees are \$25-50/ton, county-owned and commercial sites are about the same. Wisconsin is active in beneficial use, particularly foundry sand and CCP, but not so active with shingles. They do have grant dollars to award. LaCrosse County has good examples. Similar issues as the others have mentioned (specs and DOTs and markets).

Jenna Jambeck, Recycled Materials Resource Center: DOT funds the RMRC and we're hoping for more synergies with EPA now.

Florida (information offered by Dr. Kimberly Cochran, USEPA): Lower tipping fees in the north than in the south (\$50-60??). Only one shingle recycler that she is aware of. Mentions the value of recycling considerations as a means to deal with hurricane debris.

Washington: Recycling market development is the issue. Doing a demonstration project: consulted with an advisory group (good cross-section of stakeholders represented), and are pursuing a demo – looking for a project. Have consulted with MN and others with more experience

North Carolina: Last time NC did a demo was 10 years ago, but lots of potential to do something.

NOTE: EPA mentioned an ongoing series of Resource Conservation Challenge webinars addressing various recycling topics. See schedule, topics, and instructions for signing up for these free webinars at <http://www.epa.gov/region1/RCCedu/>.

Note-taker's Observations:

Common themes: low tipping fees (easy to dispose), specs, DOTs, RMD

Other interesting issue: recycling opportunities and/or NESHAP applicability presented by disaster debris, of which shingles will be a big component

Other shingles topics:

1. ***The Numbers***—(Not discussed, as this was to be addressed by the plenary speakers and in other speaker presentations.)
2. ***Environmental issues*** –
 - a. How to convince folks that asbestos is a non-issue? Stay tuned for speaker presentations for more information. Covered under the NESHAP for asbestos for residential buildings greater with four or more units (but, as NC says, it might become NESHAP-applicable during disaster debris response situations).
 - b. Linkage to other issues, like landfill siting, material costs/availability and energy efficiencies. (See Wayne Gjerde's presentation. Need for the WaRM (waste-climate calculator) to apply to shingles like it applies to MSW. RMRC mentioned a conversion tool (PaLATE?)) Need to recognize the value of energy savings.
 - c. Some states struggle with definitions: what's a product and what's a waste?

3. *Engineering and Performance issues* – (Not discussed due to time constraints)

4. *Recycling Market Development* –

- a. Recycled materials are held to a higher standard than virgin materials.
How do we work with that?
- b. There are no mandates to recycle shingles specifically, but Chicago's new C&D ordinance contains a recycling mandate (50%). This has affected WI because tear-offs from Chicago are being brought to Wisconsin, which so far has only used a low-tech recycling approach (e.g., shingles are being used on farms for dairy cow paths, which keeps cows' feet dry so cows are happy and make milk.)
- c. Emerging markets? Look for highest and best use. LEED certification and RMD opportunities
- d. EPR/product stewardship
- e. Apparent reluctance of cement industry to burn shingles for energy/mineral component recovery

Note-taker's Observations: mandates facilitate RMD; rather than debate the difference between reuse and recycling, focus instead on diversion from landfills; "sham recycling" (ADC, etc.); more information-exchange wanted regarding emerging markets