

The Sustainable Materials Management Webinar Series

Asphalt Shingle Recycling

Tuesday October 21, 2014/1:30 – 2:45PM EDT

Presenter: Jason Haus, Chief Executive Officer,
Dem-Con Companies, LLC





Asphalt Shingle Recycling

Sustainable Materials Management Webinar Series

October 21, 2014



Hosted by:



Pennsylvania
Recycling Markets Center

The Keystone of Recycling Markets Development



Dem-Con Companies

- Third generation, family owned company;
- 5 Business Units
 - Dem-Con Landfill - Established 1985
 - 120 Acre Site
 - Liner with Leachate Collection
 - Recovery & Recycling - Established 1999
 - Process 90,000 TPY Mixed C&D
 - Shingle Processing - Established 2008
 - 1st facility to be granted MPCA approval
 - MnDOT QA/QC Certified
 - 25,000 TPY onsite, 45,000 TPY offsite
 - Material Recovery – Established 2013
 - 92,000 TPY Single Stream
 - 40,000 TPY Commercial Recyclables



Dem-Con Companies



Demolition & Construction Composition

Table 2-6 C&D Waste Composition Data from Studies Conducted in Minnesota, Iowa, Florida, and California

C&D Waste Stream Components	Percentage				
	Minnesota (1992)	Minnesota (2000)	Des Moines, IA (2002)	Florida (2002)	California (2005)
Wood	40-45%	33%	28%	15%	15%
Concrete & Block (Brick)	15-20%	5%	7%	32%	17%
Roofing	15-20%	20%	21%	6%	15%
OCC/Paper	---	5%	6%	---	3%
Drywall	5-7%	6%	13%	12%	8%
Dirt, Gravel, Rock	2-7%	---	8%	---	8%
Rubber	2-6%	---	---	---	---
Metal	2-5%	7%	5%	5%	4%
Plastic	---	3%	5%	---	<1%
Asphalt	1-2%	---	---	---	10%
Insulation	1-2%	4%	---	---	<1%
Other	1-5%	17%	10%	30%	8%

NOTE: Information taken from Minnesota Construction, Demolition and Industrial Waste Study done by Foth Infrastructure & Environment, LLC



Producing High Quality RAS

- Types of shingles available for RAS production:
 - Manufactured Scrap
 - Approx. 1,000,000 tons nationwide
 - Post consumer tear-off
 - Approx. 11,000,000 tons nationwide



Producing High Quality RAS

- Manufactured Scrap
 - Asphalt content can range from 15%-24% in fiberglass product
 - Organic based shingles can be 30% +
 - Typically less burdensome regulations for processing
 - Slightly more difficult to process due to softer asphalt
 - Higher % of granules in product
 - Increased equipment wear
 - Lower % of asphalt
 - Less contamination
 - Beware of the roll material from plants – difficult to process



Producing High Quality RAS

- Post Consumer Tear Off
 - Asphalt content typically 20%-25%
 - Less granules material due to wear and handling
 - Slightly stiffer asphalt in the mix due to oxidation
 - Added regulations – Varies widely by state
 - Permits for handling materials
 - Asbestos testing requirements
 - Requires more processing to eliminate contamination



Producing High Quality RAS



Producing High Quality RAS



Producing High Quality RAS



Producing High Quality RAS

- Possible Regulatory Items – varies by state
 - Quality Assurance & Quality Control Documents
 - Specification certifications
 - Asbestos Testing
 - Air permits for equipment
 - Local zoning and conditional use requirements



Producing High Quality RAS

- QA/QC Plan Should Include
 - Inspection Requirements
 - Personnel Training Program
 - Process Management Plan
 - Sampling Procedures
 - Housekeeping Process
 - Contingency Action & Emergency Response Plan
 - Supplier Certification & Specification Documents
 - Facility Certification Letter



Producing High Quality RAS

- Minnesota Requirements – an example
 - Acceptance of Materials – Manufactured Scrap
 - Meets current beneficial reuse rules
 - Limited handling and storage restrictions
 - Mixed Post Consumer Tear Off Material
 - Solid Waste Permit is Required
 - Storm water management facilities in place
 - Inspected by MPCA
 - Source Separated (Clean) Post Consumer Tear Off Material
 - Beneficial Use Rules May Apply – No Solid Waste Permit Required
 - Difficult but not impossible to have material delivered completely separated



Producing High Quality RAS

- Specs for Sizing
 - 100% passing 1/2" or
 - 95% passing 3/8" or
 - 100% passing 3/8" or
 - 100% passing 1/2" and 90% passing #4
- Sizing is continually getting smaller



Producing High Quality RAS

- Specs for testing
 - Deleterious by weight
 - 3.0% or
 - 1.5% or
 - 0.5% Maximum
 - Asbestos Testing
 - Every load
 - 1:25 Ton
 - 1:50 Ton
 - 1:250 Ton of Material Processed
 - Onsite and 3rd Party Lab requirements



Producing High Quality RAS

- Asbestos
- Implement Procedures to minimize asbestos acceptance
 - Certified haulers
 - Single layer acceptance criteria
 - Single family home reroof only
 - Dem-Con testing results
 - Test once per 250 ton pre-grind
 - Nearly 2,000 data points
 - 1 occurrence of asbestos
 - MnDOT Required Certified inspector and 3rd party lab



Producing High Quality RAS

- Be prepared for change
 - Sizing changes
 - Asbestos testing changes
 - Acceptance criteria may change
 - Current Rules may not be the rules of tomorrow
- Find quality industry partners
 - HMA plants
 - Manufacturing suppliers
 - Grinding vendors
 - Roofing suppliers



Producing High Quality RAS

- Challenges in the Market
 - Fluctuating Market Conditions
 - Balancing recovered materials in HMA designs
 - Virgin asphalt requirements in HMA mixes
 - Recovered Shingles vs. Millings & RAP
 - Market goes in cycles
 - Current market is high inventory of Millings & RAP = low shingle demand



Producing High Quality RAS

Current Infrastructure

Process Flows:

- Shingles Tipped
- Asbestos Testing
- Pre-Sort
- Metering Equipment
- Sort Line
- Grind
- Screen
- Load Out



Producing High Quality RAS

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Producing High Quality RAS



CDRA

Construction & Demolition Recycling Association

- Shingle Recycling Committee
 - Over 40 interested parties in shingle recycling
 - Bi-monthly conference Calls
 - Committee's Initiatives
 - Current State Specs and Contacts
 - Important for adding new states for specifications
 - BMPs and Technical Papers
 - Asbestos and Air Quality Data Collection
 - Shingle Recycling Forum
 - Updated website at www.shinglerecycling.org



CDRA

Construction & Demolition Recycling Association

- 7th Bi-Annual Shingle Recycling Forum
 - The best industry meeting place for shingle recycling
 - Premier program for those looking to enter the market
 - Designed for experienced as well as new comers
 - To be held in the fall on 2015 – Location: TBD
 - 300+ attendees



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QUESTIONS?

PLEASE USE THE GO TO WEBINAR DIALOGUE BOX

