

Understanding Your Waste Stream

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By

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The Value of Studying the Waste Stream

- Reduces assumptions and hearsay to reality
- Makes the invisible, visible
- Provides realistic opportunities
- Identifies components of and variance in the waste stream









Using a Waste Characterization Study to Analyze the Waste Stream

- Planning
- Sampling
- Analysis



Planning

All waste characterization studies should be tailored to site-specific needs

- Identify study purpose
 - What is invisible
- Identify study scope
- Determine sampling methods & frequency



Sampling Methods & Frequency

- How many times per year will waste be sorted
- How many samples need to be captured
- How are samples captured
 - Full load, partial load
- How is waste categorized
 - More categories – more data
 - More categories – fewer samples
- Define categories
 - Cardboard is not cardstock



Basic Waste Categories

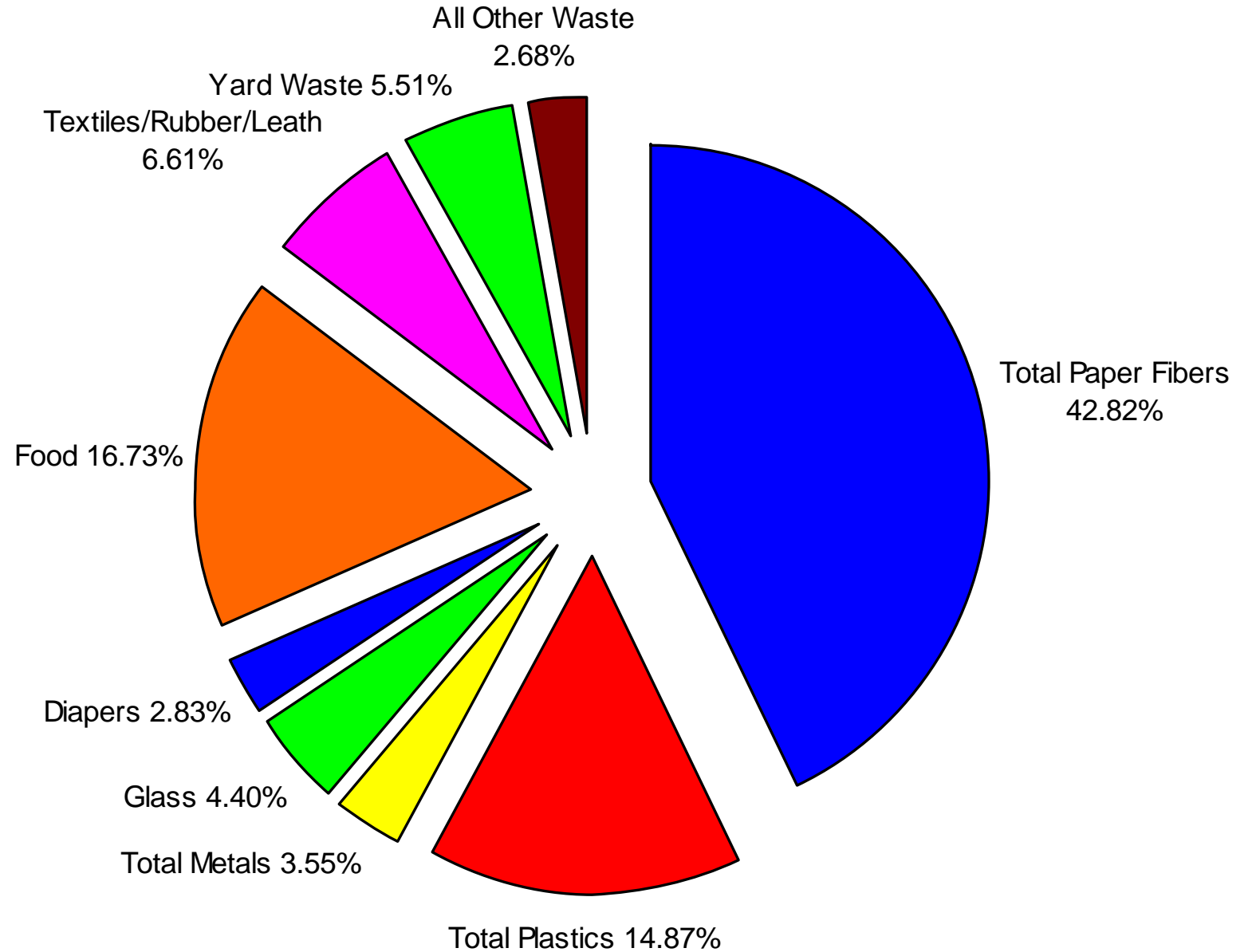
- Paper
- Plastic
- Glass
- Metal
- Food
- Diapers
- Yard Waste
- HHW
- E-Waste
- Other
 - Textiles/Rubber/Leather
 - Wood
 - C&D Waste
 - Medical Waste
 - Aerosol Cans

Sampling & Analysis

- Sampling
 - Is conducted in the field
 - Is not always fun
- Analysis
 - Collate data
 - Identify trends
 - ✓ Sought in planning stage
 - ✓ Discovered in field



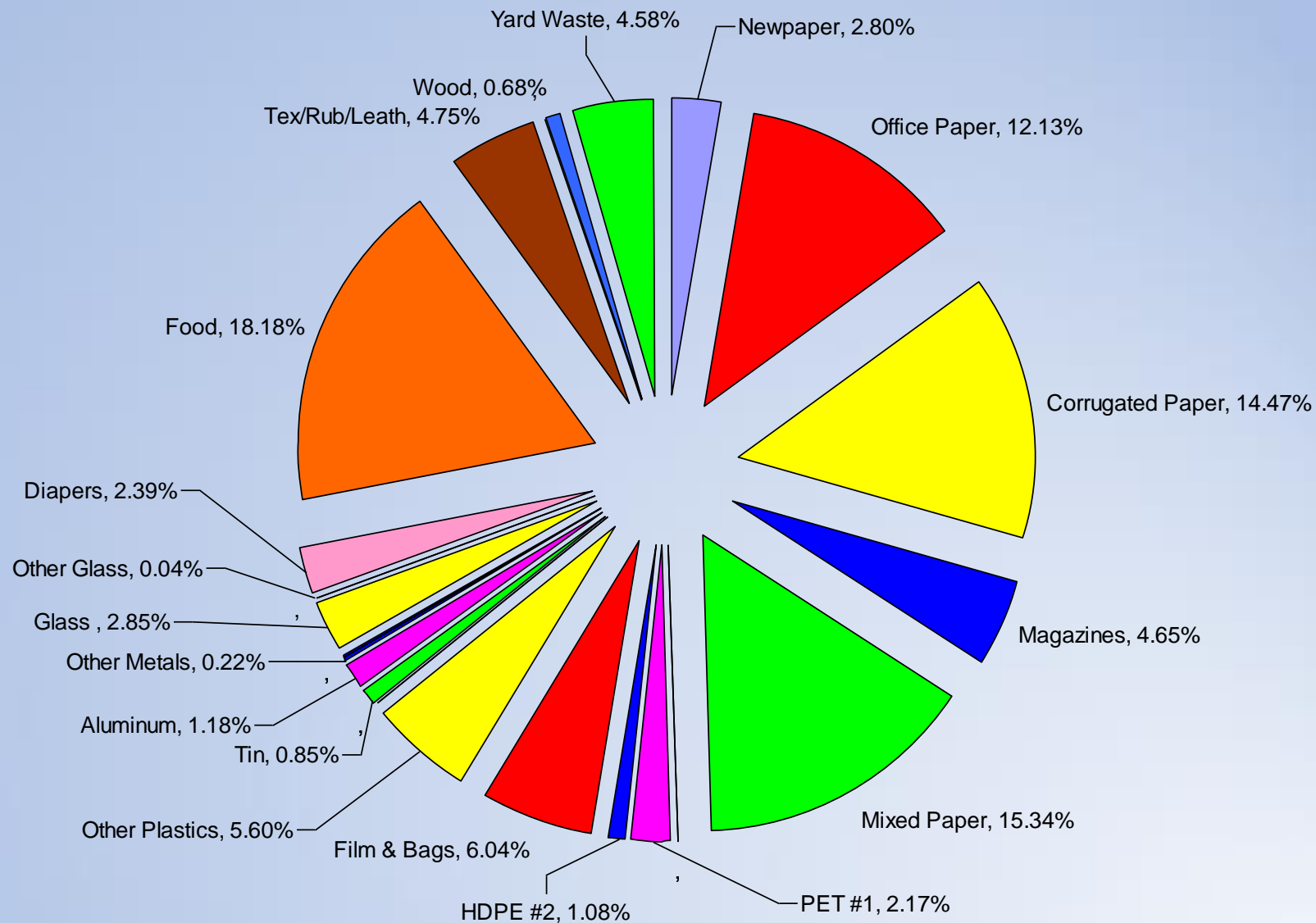
Weight Distribution for the Missouri Waste Stream



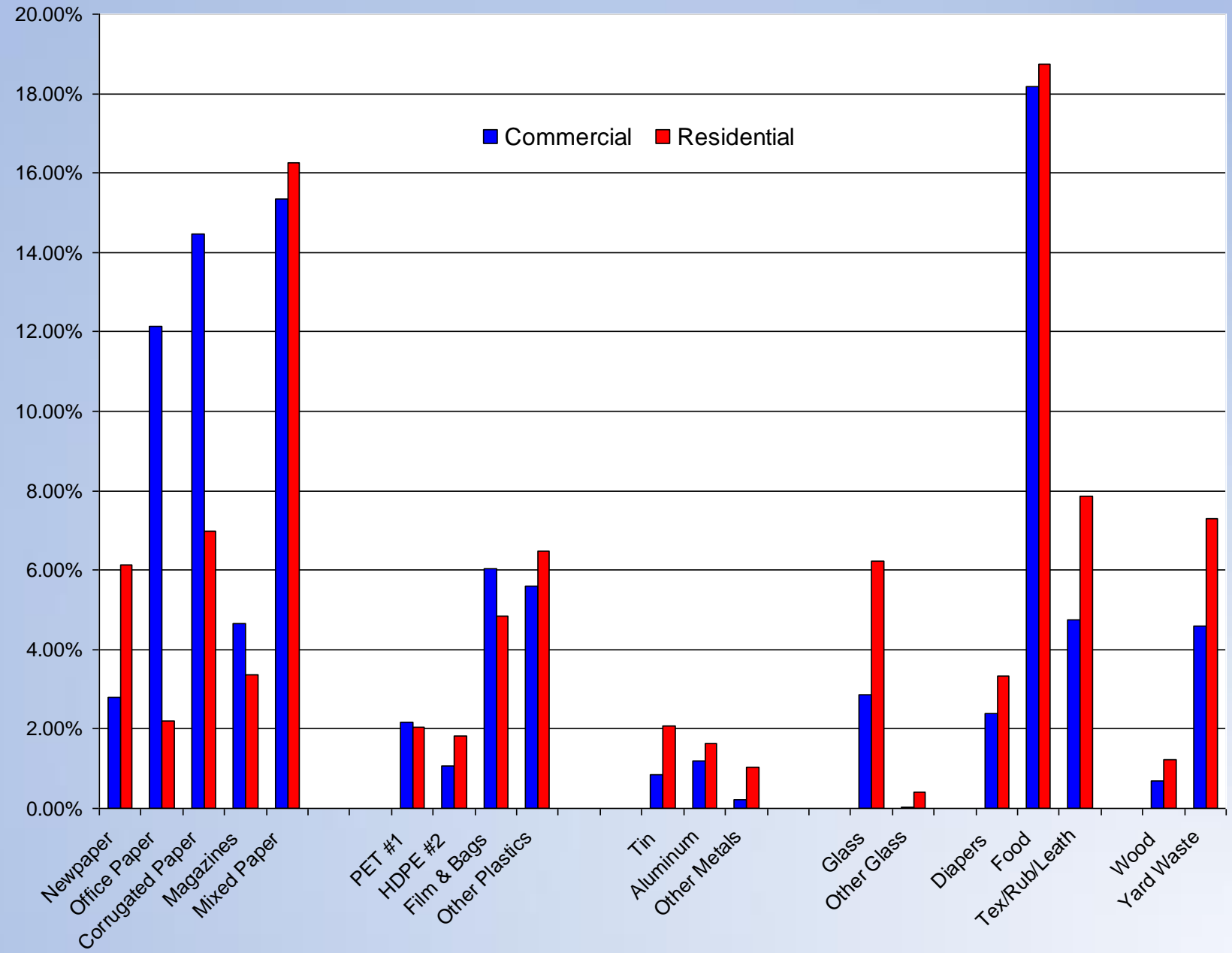
Type of Waste in Pure Commercial Loads

Sample Number	Retail	Offices	Restaurants	Nursing Homes	Elem Schools	Mid- High Schools	Other
1016D3.01	•	•	•		•	•	
1016D3.07		•					
1017D4.02	•	•	•		•	•	
1017D4.09							•
1018D5.01	•	•	•		•		•
1018D5.02	•	•	•		•		•
1018D5.12	•	•	•	•	•		•
1019D6.01	•	•	•	•	•		•
1019D6.02	•	•	•		•	•	•
1019D6.03		•	•		•		•
1019D6.12	•	•	•	•			•
0326D8.02	•	•	•		•	•	
0326D8.11	•	•	•				
0327D9.02							•
0327D9.03							•
0327D9.11	•	•	•		•		
0328D10.01	•		•				•
0328D10.02	•		•	•			•
0328D10.12	•	•	•				•
0328D10.13	•						
0329D11.02		•					
0330D12.02	•		•	•	•		
TOTALS	16	15	16	5	11	4	13
The Other category includes wood working shops, auto parts stores, car dealers, and auto repair shops.							

Weight Distribution for the Missouri Pure Commercial Waste Stream



Comparison of Pure Commercial to Residential Missouri Loads



Items Sighted During Sorting Events APAC C&D Landfill

Sighted Item	Percentage of Sampled Loads that Contained the Item	
	Fall	Spring
Scrap Lumber	96	95
Metals	87	38
Cardboard	47	52
Wood Pallets	41	33
Carpet	37	43
Concrete	37	29
Shingles	35	29
Plastic	33	48
Insulation	30	29
Electric/Telephone Cable	28	38
Drywall	24	57
Yard Waste/Tree Limbs	24	52
Dirt	17	33
Plumbing Fixtures	17	24
Siding	15	19
Furniture	15	62
Brick	13	14
Block	11	14
HVAC Parts	11	14
Landscape Timbers	11	19
Municipal Solid Waste (MSW)	4	24
Metal Straps	2	24
Appliances	4	19

Utilizing the Data

- Planning Tool
- Projection of Benefits
- Impacts to Waste Stream
- Impacts to Solid Waste System

Methods to Understanding the Waste Stream

- Windshield Method
- Walkaround Method
- Touching the Waste Method

Windshield Method

- Distant observations
- Good observation skills
- Consistent sampling



Walkaround Method

- Close observation
- Detailed inspection
- Volume estimates



Walkaround Method Interview and Visual Inspection Form

FACILITY		DATE	
TRUCK OWNER		TRUCK #	
TIME IN		NET WGT	
TYPE OF TRUCK	<input type="checkbox"/> REAR <input type="checkbox"/> FRONT <input type="checkbox"/> SIDE <input type="checkbox"/> ROLL-OFF		
SERVICE AREA TYPE OF WASTE DRIVER OBSERVATIONS	County: _____ Community: _____		
	<input type="checkbox"/> RES <input type="checkbox"/> COM <input type="checkbox"/> MIX		
	<input type="checkbox"/> Single Family <input type="checkbox"/> Apartments <input type="checkbox"/> Retail <input type="checkbox"/> Offices <input type="checkbox"/> Restaurants		
	<input type="checkbox"/> Nur Home <input type="checkbox"/> Hospital <input type="checkbox"/> Dr Offices <input type="checkbox"/> Schools		
CPUs		Televisions	Sofas
Keyboards		VCR/DVD	Stuffed Chairs
Monitors		Tires	Mattresses
Printers		Wood Pallets	Fluorescent Bulb
Stereos		Small Apps	Oil Filters
Speakers		Large Apps	Dead Animals
<div> Cardboard <input type="checkbox"/> Plastic Wrap <input type="checkbox"/> Food <input type="checkbox"/> Aluminum Cans <input type="checkbox"/> Bottles <input type="checkbox"/> </div> <div> Lumber <input type="checkbox"/> Plumbing Fix <input type="checkbox"/> Elec Wire/Cable <input type="checkbox"/> Insulation <input type="checkbox"/> Siding <input type="checkbox"/> </div> <div> Shingles <input type="checkbox"/> PVC Pipe <input type="checkbox"/> Plastic Strap <input type="checkbox"/> Carpet <input type="checkbox"/> Metal <input type="checkbox"/> </div> <div> Doors <input type="checkbox"/> Windows <input type="checkbox"/> Drywall <input type="checkbox"/> Linoleum <input type="checkbox"/> Styrofoam <input type="checkbox"/> Plastic Bins <input type="checkbox"/> </div> <div> Patio Furn <input type="checkbox"/> Wood Furn <input type="checkbox"/> Metal Furn <input type="checkbox"/> Office Furn <input type="checkbox"/> </div> <div> Yard Equip <input type="checkbox"/> Garden Hose <input type="checkbox"/> Bicycles <input type="checkbox"/> Car Seats <input type="checkbox"/> Strollers <input type="checkbox"/> </div> <div> Plastic Toys <input type="checkbox"/> Stuffed Toys <input type="checkbox"/> Books <input type="checkbox"/> </div> <div> Car Parts-Body <input type="checkbox"/> Car Parts-Engine <input type="checkbox"/> Limbs & Brush <input type="checkbox"/> Yard Waste <input type="checkbox"/> </div>			

Touching the Waste Method

- Walkaround
- Sample selection process
- Sort sample



Touching the
Waste
Method
Data
Recording
Sheet

DAY/DATE			SAMPLE REFERENCE #			
MATERIAL CATEGORY	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME	VOLUME
CARDBOARD						
OFFICE PAPER						
NEWSPRINT						
MAGAZINES						
PAPERBOARD						
MIXED/OTHER PAPER						
PET #1						
HDPE #2						
OTHER NUMBERED CONTAINERS						
PLASTIC FILM/WRAP/BAGS						
OTHER PLASTICS						

Characterizing the waste stream benefits all levels of the solid waste industry

- Regulators
 - Trends
 - Focused regulations
- Operators
 - Operational efficiency
 - Cost savings
- Haulers
 - Market potential
 - Optimize equipment
- Public
 - Cost savings
 - Cleaner environment

Questions?



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