

**More Recovered Paper
with Lower Yield = Less RP**

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Question

- **Will Single Stream Collection provide more Recovered Paper?**

Single Stream Pro + Con

1. Advantages*:

- More recyclables + more paper collected
- Lower collection costs
- Single compartment trucks = more flexibility

2. Disadvantages*:

- Capital cost for new carts, vehicles, proc. facility
- Processing costs may increase
- Possible reduced commodity prices due to cont.
- More “downcycling” due to contaminants
- Possible increase in residual rates

* = Wisconsin DNR - Bureau of Waste Man.

1: More SS RP → Larger Losses

Comparison of 3 of 6 collection methods in St. Paul*

	Source Sep.	2 Str. Com.	Single Str.
% more coll.	6	33	21
% mat'l loss	1.6	11.6	27.2
Coll. \$/ton	60		
Proc. \$/ton	35		
Proc. Rev/ton	-50		
Net Cost \$/ton	45		

* = Eureka! Recycling, May 2002

2: More SS RP = 10 – 25% Losses

West coast mill experience

- ONP Quality worse after switch to co-mingled:

Time	Sup.	System	Sold as	Out%	Pr.%	GI%
<2001	ALL	100% Source S	#8 ONP	0.25- 0.5	0.0	0.0
10/03- 4/05	ALL #2 #3	55% Co 100%Co				

*=Simmons & Sacia, 2005 EPE Conf.

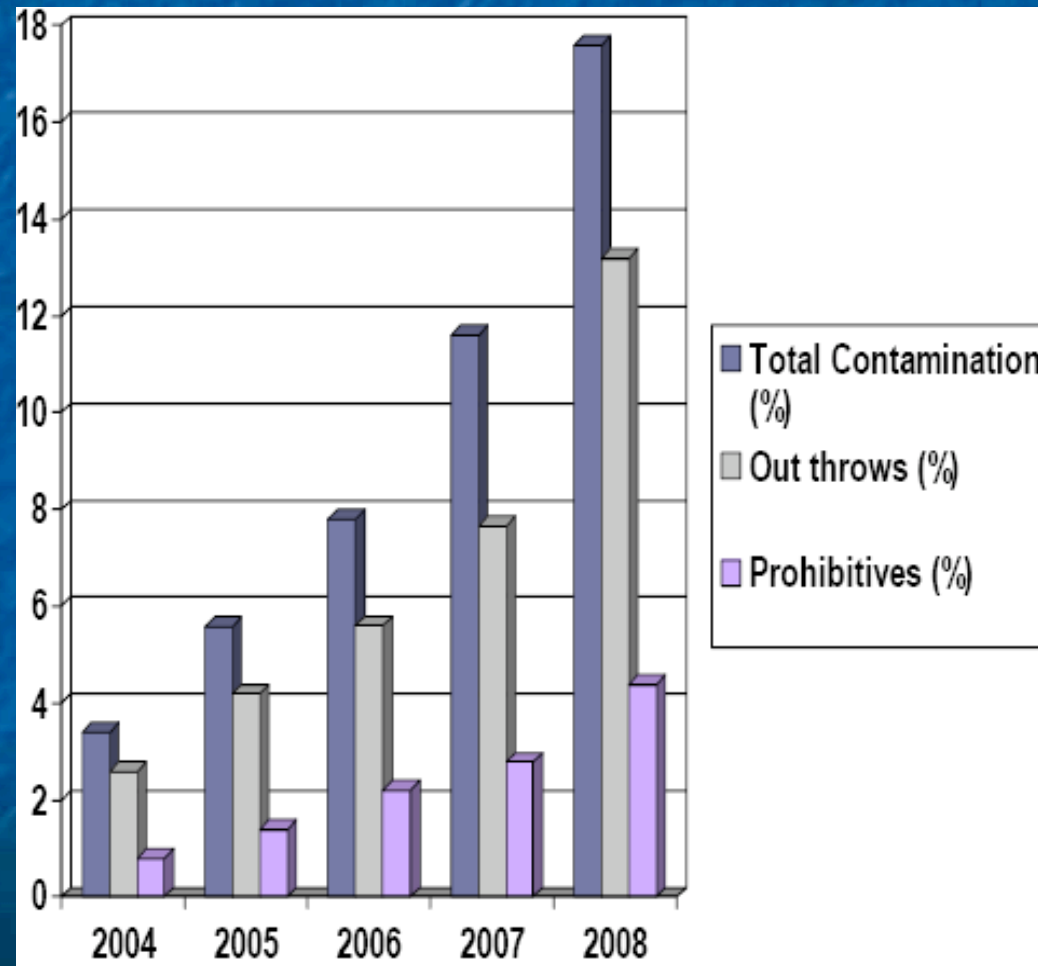
RP Supply Audit



“300 lb sample, randomly grabbed by bobcat from loose deliveries, for raw material quality program”*

***= Simmons & Sacia, 2005 EPE conference**

3: More SS RP Increases Losses from 3 to 17% at Oregon Mill*



*= E. Nicodimos, 2008 EPE Conference, Portland, Oregon

4: Oregon TMP / Deink Mill*

- Single stream became the norm after 2005 and wet rejects increased 2.5 fold per ton of Deink production.

5: UK Gov't Study*

Levels of contamination in recovered mat'ls:

- <0.5% in curbside sort materials
- 10% in single stream materials
- 5% in dual stream materials

“Separated curbside collections are more cost effective than co-mingled collections”

*= Marley, Paper Technology, July 2008

6: The Quest for Fiber at AbitibiBowater*

Built facility to process s.s. materials in Texas:

“Contaminant content – glass, metal, plastic –
is sometimes as high as 10 - 15%”

“We have made the commitment to install the
best equipment” goal: 3% contaminants.

*= Rodden, Pulp & Paper, Sept. 2008

“AbitibiBowater also own hauling system for 23000 PaperRetriever^R containers to collect fibers from schools, places of worship etc. This fiber is generally clean of all contaminants*”



*= Rodden, Pulp & Paper, Sept. 2008

Appleton votes for SS

- Appleton WI currently has dual stream collection and the separately collected paper goes to a papermill.
- Appleton voted 27-7 to approve Tricounty \$9.9 million single stream recycling plant*.
 - “people recycle more if they don’t have to sort it”
 - “we have two paper mills that want all the paper they can get from us”
 - “we need to keep this landfill in county hands”
 - “not one community said “we want this”.”

*= Squires; Post Crescent, Appleton, 8-13-'08

Conclusion

1. Single stream RP going to mills contains ~10% contaminants, which are landfilled.
2. We need “PaperRetriever^R” programs in Lake States to collect more good fiber with few contaminants.