

The Next Generation of MRFs: Improving Efficiency and Material Quality

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Design Considerations

- **Inbound Quality**
- **Material Streams and Mix**
- **End-Markets**
- **Volume**
- **Seasons**



Inbound Quality

Quality is best controlled at the curb

Poor inbound quality will effect:

- *System throughput*
- *Number of manual sorters*
- *Maintenance and system cleaning*
- *May alter end-market*



Material Streams and Mix

- **Residential**
 - *Dual stream*
 - *Single stream*
- **Commercial**
 - *OCC*
 - *Commercial mix*
- **Often systems need to be designed for multi- stream blends**



Multiple Residential Streams

- **When MRF receives both single stream and dual stream:**
 - *Provide separate infeed to container line*
 - *Use single stream screens to clean fiber*
 - *High fiber % on single stream screens allows for higher throughput and better quality*



Multiple Commercial Streams

- **When MRF receives both “clean” OCC and commercial mix:**
 - *Consider reversible unders conveyor*
 - *Send unders of commercial mix to unders sort line*
 - *Send unders of clean OCC to residue*



End Markets

- **Avoid designing only around inbound streams**
- **Understand available end markets**
- **Maintain flexibility for multiple end markets**



Seasons

- **Systems perform differently in varying weather conditions**
- **Cold weather significantly effects disc screens**
- **Wet weather and snow effects nearly all equipment**
- **Some areas see significant swings in seasonal volume**



Single Stream

- **Small systems ineffective**

Consider:

- *OCC Screening*
- *2nd presort between OCC screen and ONP screen*
- *ONP Screens*
- *Polishing Screens*
- *Optical Sorting*



Container Systems

- **Glass cleaning systems have become essential**
- **Use of “no-sort” container lines**
 - *Minimize labor*
 - *Increase throughputs*
 - *Increase recovery*
 - *Increase quality*



Optical Sorting

- **Many uses:**
 - *Plastics sorting*
 - *Glass Sorting*
 - *Removal of fiber from containers in single stream*
 - *Removal of brown, containers, or residue in ONP or mixed paper*



Design Considerations

- **Feed system**
 - *Metering wheels and drum feeders*
 - *Good consistent feed essential*
- **Baler and bunker capacities**
 - *Some systems now operate at 40-50 tph*
- **Mix of material**
 - *Single stream systems with high fiber content get better throughput*

