



Washington State Recycling Association

Paper Chase - Ins & Outs of Paper Recycling

September 11, 2018

Glossary of Terms

ADST – Air Dry Short Tons

ADMT – Air Dry Metric Tons

ODMT – Oven Dry Metric TOns

ONP – Old Newspapers including; Overissue, Source Separated, MRF Generated.

OP – Office Papers

MIX – Mixed Paper

Primarily from Single Stream Residential Programs

OCC – Old Corrugated Containers

TMP – Thermal Mechanical Pulp

Process used to take wood chips and separate into individual fibers using mechanical equipment combined with temperature

UCFS – Paper Made from Bleached Kraft fibers

Recycle Raw Material Quality

NORPAC Track Record of Innovation & Growth

	1970's	1980's	1990's	2000's	2010's-Current
Machine Start-up Key Refurbishments	1979 <ul style="list-style-type: none"> NORPAC founded as a JV between Nippon Paper and Weyerhaeuser Paper Machine 1 and TMP1 Start-up 	1981 <ul style="list-style-type: none"> Paper Machine 2 and TMP2 Start-up 	1991 <ul style="list-style-type: none"> Paper Machine 3 and Deink Facility Start-up 1996 <ul style="list-style-type: none"> Paper Machine 2 Gate Roll Size Press Upgraded 	2006 <ul style="list-style-type: none"> Paper Machine 1 Rebuild 	2011 <ul style="list-style-type: none"> TMP1 Chip Pretreatment and Interstage Screening Upgrade 2012 <ul style="list-style-type: none"> TMP2 Chip Pretreatment and Interstage Screening Upgrade
New Product Introduction	1979 <ul style="list-style-type: none"> Launch of Standard (30#, 32#) and Letterpress Newsprint 	1988 <ul style="list-style-type: none"> Commercial Launch of Low Brite Publication Products 	Early 90's <ul style="list-style-type: none"> Launch of Various Hi Brite Publication Products 1998 <ul style="list-style-type: none"> Lightweight (27.7#) Newsprint Launched 	2004 <ul style="list-style-type: none"> Book Products Introduced 2007 <ul style="list-style-type: none"> Super Bulky Pub. Recycled Book Launched 2008 <ul style="list-style-type: none"> Blue Book Product Launched 	2012-2013 <ul style="list-style-type: none"> 92 Bright UCFS Sub. And Intl. Hi Brite Product Introduced 2015 <ul style="list-style-type: none"> Commercial Launch of Natural Choice and 24.5# Newsprint Product Commercial Launch of ORCA UCFS Copy paper 2018 <ul style="list-style-type: none"> Successful Launch into the Packaging Products Sector with Medium, Liner & Bag
Awards		1981 <ul style="list-style-type: none"> PM2 Named World's Fastest Newsprint Machine 1987-1988 <ul style="list-style-type: none"> PM2 Named World's Fastest Newsprint Machine 	1991 <ul style="list-style-type: none"> Named Supplier of the Year by Dow Jones in 1991 and 1992 1998 <ul style="list-style-type: none"> USA Today Newsprint Supplier of the Year 	2008 <ul style="list-style-type: none"> PPSA Most Improved 	2010, 2014, Q1 2016 <ul style="list-style-type: none"> Ranked #1 in Safety for all Pacific Coast Pulp & Paper Mills by the Vigilant Group 2008-2013 <ul style="list-style-type: none"> Top Rated Newsprint Supplier by independent survey 2009, 2010, 2014 <ul style="list-style-type: none"> PPSA Best Record



NORPAC Raw Material Story

Years 2003 - 2017

Recycle Raw Material Quality

NORPAC has a long history of reporting the impacts of Single Stream Recycling beginning in 2004 with presentations to TAPPI (Technical Association of Pulp & Paper Industry), California Single Stream Roundtable, SWANA, EPA Region 10 Commingling Best Practices, AOR, WSRA Annual Conference, WSRA WRED Events, OR DEQ, WA DOE Southwest Region Single Stream Best Practices,

Received national Recognition from TAPPI in 2005 for technical paper on negative impacts of Single Stream Recycling on mill operations & costs

Most Recent -

- Presentation to Association of Oregon Recyclers (AOR) November 2017 and National Recycling Conference May 2017

Key Points in Supply History

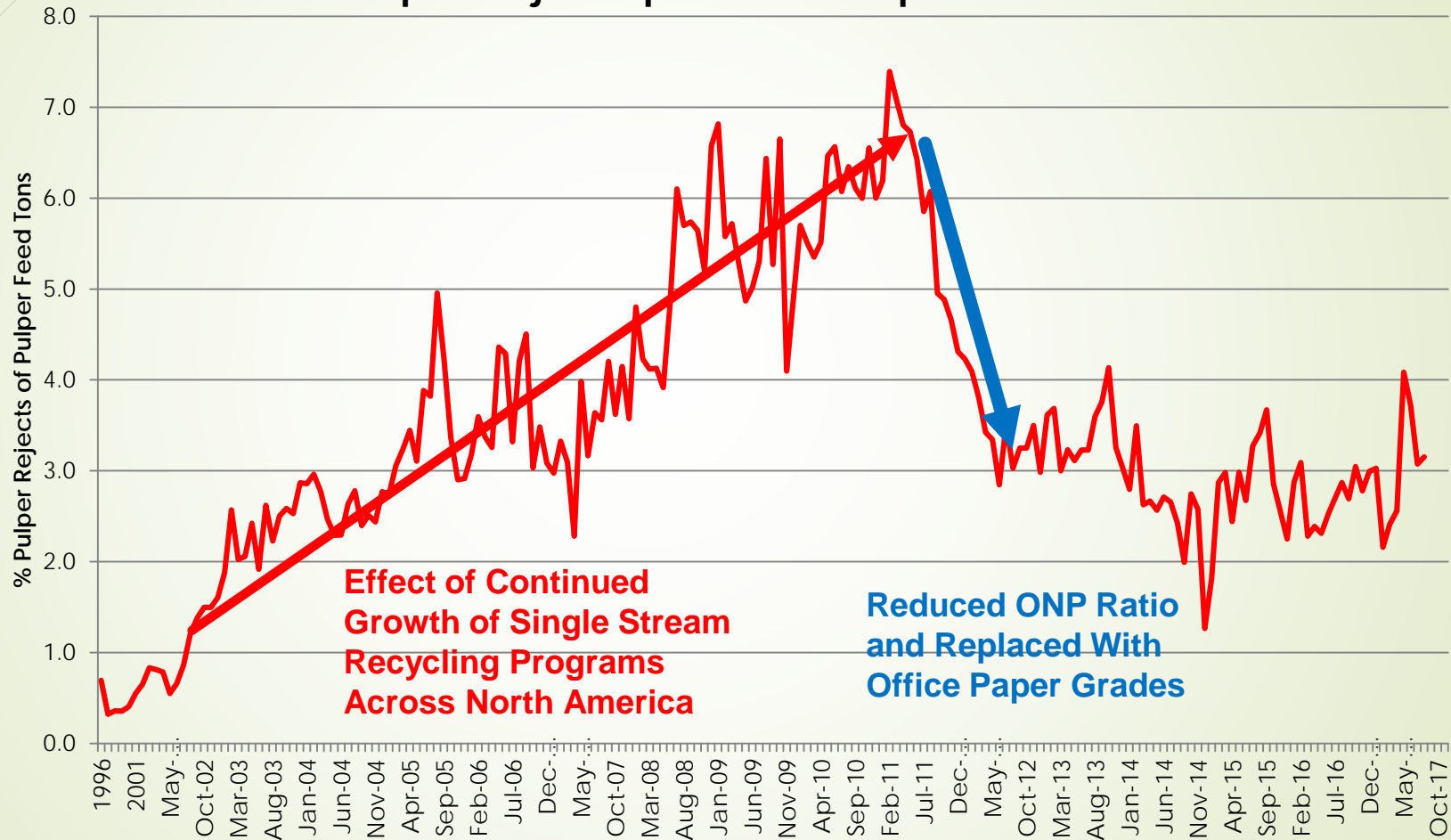
- Single Stream collections negatively impacting NORPAC beginning 2001
- By 2011, as much as 97% of NORPAC Recycle Fiber Supply sourced from Single Stream collection programs
- NORPAC Made Strategic Decision to Move Away From ONP from Single Stream Programs and Began Using OP Grades in 2011
- Decision Supported Move into Book Grades With Recycle Content
- Current Fiber Mix is Comprised of Less Than 8% Material from Single Stream Programs.
- Remaining Supply from Single Source Programs Continues to Slide in Quality, Even with Pressure from China to Improve Quality
- Behaviors Learned from Single Stream Residential Programs are Now Effecting Office Collection Programs and Quality is Deteriating
- Secure Document Destruction Programs are Not Capable of Separating Non-Fiber or Non-Office Papers and Contribute to Declining Quality Office Paper Grades

West Coast MRF's Typically Not Aligned with Domestic ONP Customer Quality Needs

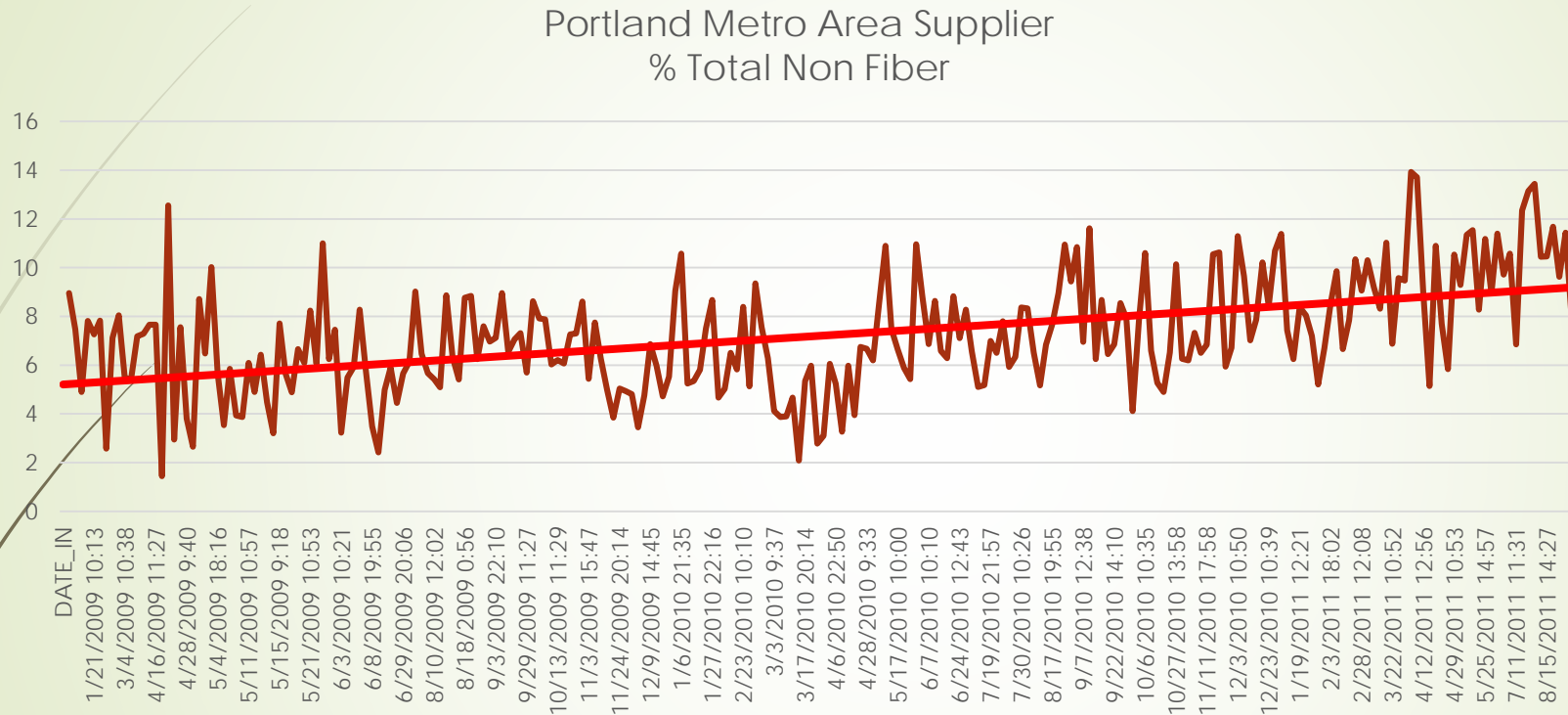
- “I do not have enough room to add more sorters to get to ONP 8 quality.”
- “My equipment supplier did not guarantee my quality would be equivalent to ONP 8.”
- “I adjusted my process to get more HDPE containers out due to high market prices. Sorry about your paper quality.”
- “Sorry about your quality, we had to run harder to keep up with material after being down for a day.”
- “We are running harder to keep up with the increase volume from the curbside programs.”
- “I get the same price for Mixed Paper in the Export market compared to ONP 8 on the Domestic market and I do not have to spend additional money cleaning it up.”
- “Why should I add labor costs at my facility creating a lower margin for my operations just to sell to a Domestic customer?”

Recycle Raw Material Quality

ADST Pulper Rejects per ADST Pulper Feed



Recycle Raw Material Quality

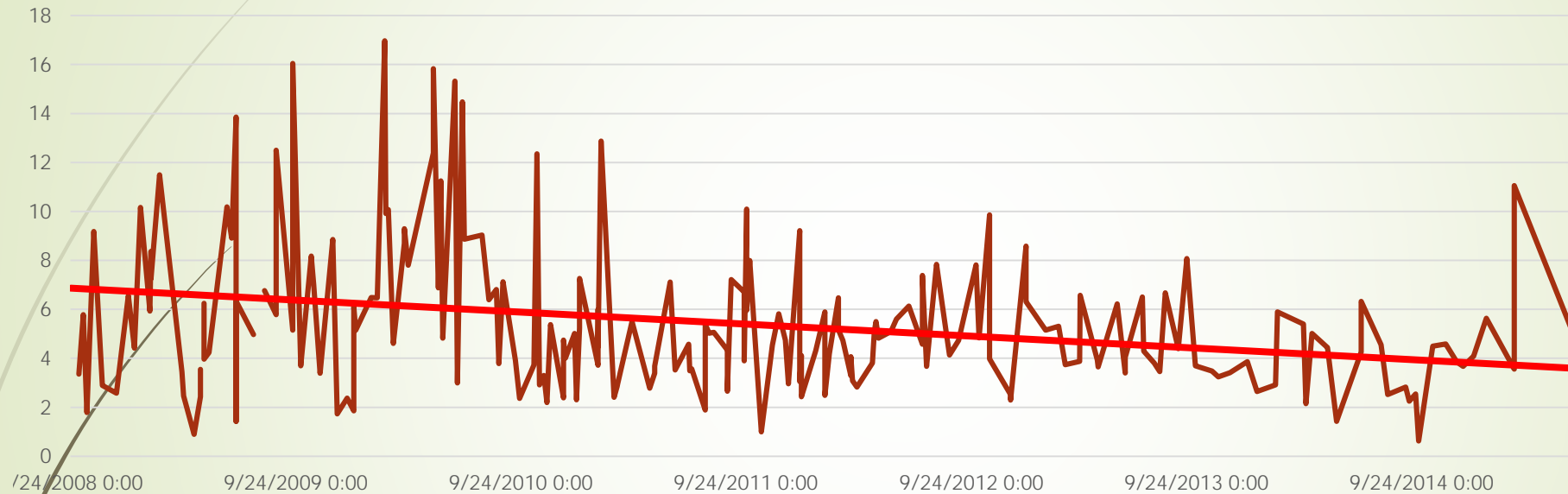


Increased ONP Grade contamination caused by –

- More items added to program
- Higher run rate at MRF creating lower efficiency of process
- Increasing public trend of adding non-program items to recycling carts

Recycle Raw Material Quality

East of the Rockies Supplier A
% Total non Fiber



Decreasing ONP Grade contamination due to –

- Pressure from Domestic customers
- Business decision to limit risk of selling into Export market
- Running sort system at a pace to achieve Domestic customer expectations

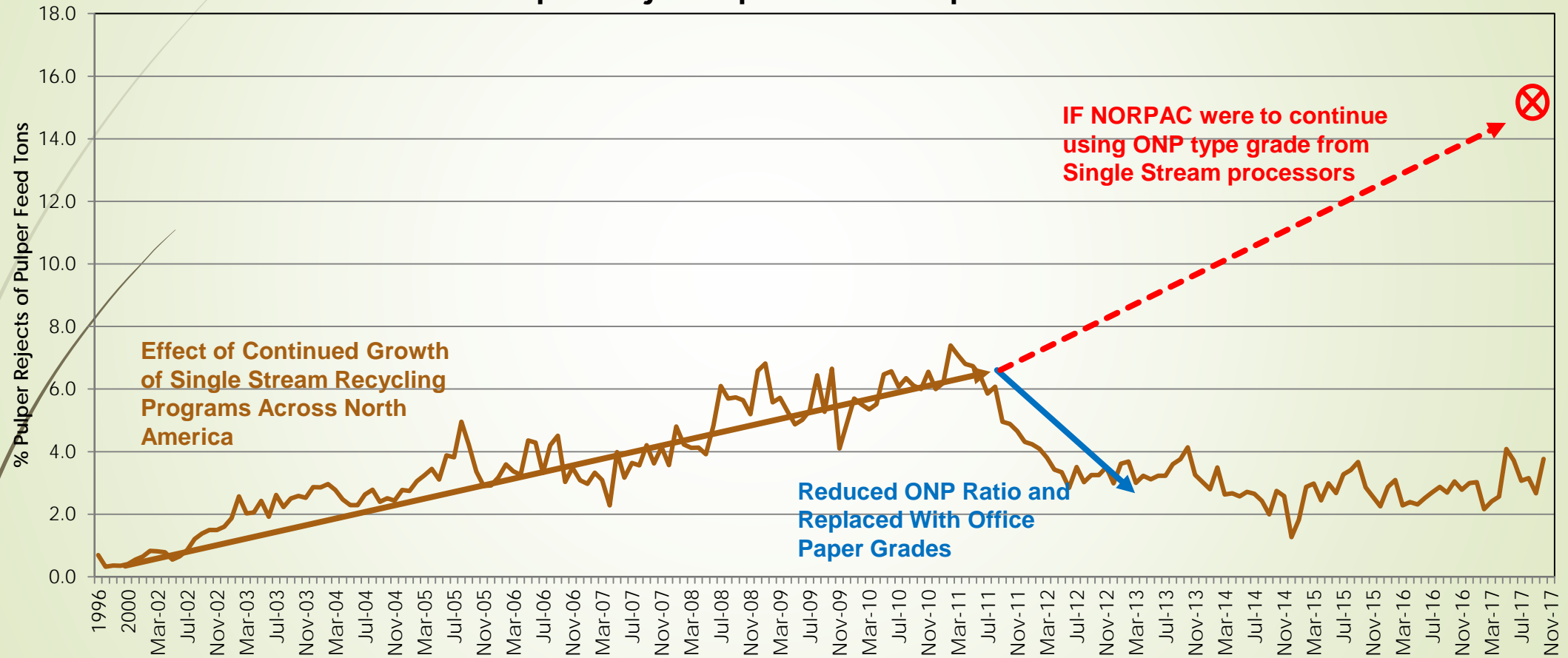
Recently Completed a Quick Evaluation of Local Single Stream ONP / MIX Quality

Key Observations –

- Pulper Yield loss = Greater than 15%
- Pulper Rejected Characteristics –
 - Heavy in film plastics
 - Small rigid plastic containers
 - Non Program items such as; cd's, broken plastic packaging items, etc.
- Process Loss was high in glass content which overwhelmed and plugged glass removal equipment
- Overall Yield Loss was close to 20%

Recycle Raw Material Quality

ADST Pulper Rejects per ADST Pulper Feed



Major Differences East of the Rockies

Program limited to items MRF know they can remove

Programs do not include/add items for which there is no market

Glass is typically not a program item in the Midwest.

Public has not developed poor recycling habits due to lower level of messaging

Municipalities/states do not have aggressive landfill diversion goals as compared to West Coast

ONP

Quality Declining Creating Large Negative Impacts to Processing Costs and Setting Direction Business to Exit Recycle Fiber Grades Where Possible -

Newsprint

OP

Quality on a Similar Path as ONP Creating Similar Decisions for Business

Limit Recycle Content in Hi Brite Grades

At a minimum – Keep Glass out of Programs

Desirable Outcome – Create a two bin system

- Fiber
- Non-Fiber



NORPAC Raw Material Story

Year 2018

NORPAC Business Diversification –

- Successfully entered the Packaging Sector
 - Using available fiber supply –
 - OCC
 - Curbside MIX Paper
- Packaging grades include but not limited to –
 - Medium
 - Liner
 - BAG

Same Challenges

- Poor Yield – 80% Yield = 20% of what is purchased is sent to the landfill from items not part of recycling programs or cannot be separated by MRF's.
 - Clamshells
 - Film plastics
 - Hose sections
 - Fence Posts
 - Footballs
 - Tennis Shoes

MIX

- With an AVERAGE Yield Loss at Pulper of 20% -
 - Fill 12 each of 40 Cu Yd Drop Boxes in a 24 Hour Period
 - All Drop Box Contents are Landfilled
 - Typical Monthly Production results in 79 Drop Boxes (640 ADST) Sent to Landfill

MIX

- Now the Primary Grade Purchased for NORPAC
- Quality Will Continue to Have a Large Negative Impact to Processing Costs Under Existing Program Designs
- The Current Market Pricing Helps Defer this Large Negative Financial Impact

OCC

- Similar Concerns With Contaminants and Negative Financial Impacts

ONP and OP

- No Change in Concerns as Stated 10 Months Prior

What Makes MIX a Viable Grade Now vs. Earlier – **PRICE**

	RISI Index (FOB Supplier)		
	<u>US AVG</u>	<u>Export to Asia (LA)</u>	<u>PNW Domestic</u>
September 2017	\$60	\$104	\$42
August 2018	\$ -0.30	\$28	\$ -2.50

- Compare this price drop and related Yield Loss to following scenarios –
 - A. 2008 – 2017 Gas prices at \$4.80/gal and with 20% Yield Loss on consumption = \$5.76/gallon. Decide to not take your \$50,000 SUV on your family vacation trip across the country so the vehicle remains parked and used only to get groceries
 - B. 2018 Gas price drop 106%. With a 20% Yield Loss on consumption you can now afford to drive your SUV on that family vacation across the country.

This has provided NORPAC an opportunity to enter into the Packaging Sector, and a financial incentive to develop this new grade for the business.

COLLECTION & PROCESSING

- At a minimum – Keep Glass out of Programs
- Desirable Outcome – Create a two bin system
 - Fiber
 - Non-Fiber (No Glass)

Allows MRF greater opportunity to separate fibers from non-fiber included by program participants (Residential and Commercial)

MIX Paper grade needs to be affordable to compensate for high Yield Loss