



## Responsible Recycling Task Force Meeting #4

July 18, 2018 - 9:00 a.m. to 11:00 a.m.

Bothell City Hall - 18415 101st Ave NE, Bothell, WA 98011

### Members Present:

April	Atwood	Seattle University, SWAC Vice Chair
Stacey	Auer	City of Redmond
Joe	Casalini	Republic Services
Rika	Cecil	City of Shoreline
Sabrina	Combs	City of Bothell
Tony	Donati	City of Kent
Susan	Fife-Ferris	SPU
Cynthia	Foley	Sound Cities
Jeff	Gaisford	KCSWD
Sego	Jackson	SPU
Jennifer	Jessen	Public Health
Phillippa	Kassover	City of Lake Forest Park, SWAC
Kevin	Kelly	Recology, SWAC Chair
Linda	Knight	City of Renton, MSWMAC Vice Chair
John	MacGillivray	City of Kirkland
Ken	Marshall	KC, SWAC
Michelle	Metzler	Waste Management
Meg	Moorehead	KCSWD
Joan	Nelson	City of Auburn
Emily	Newcomer	Waste Management
Kerwin	Pyle	KCSWD
Stephanie	Schwenger	City of Bellevue
Lisa	Sepanski	KCSWD
Penny	Sweet	Councilmember, MSWMAC Chair
Hans	VanDusen	SPU
Rob	Van Orsow	City of Federal Way

### Guest Speakers:

Eric Elliott, Seattle University

Scott Farling, Titus MRF Services

### Consultants:

Julie Colehour, Facilitator, C+C

Colette Marien, Meeting Coordinator and Notetaker, C+C

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## **Agenda Item #1:** Welcome & Introduction (*called to order by Julie Colehour at 9:04am*)

### **Discussion:**

- *Julie Colehour* reviews the days agenda and reminds the room that action and bike rack items will be noted down throughout the day and sent out with the meeting minutes. The day's agenda includes:
  - Fiber Markets Overview
  - Plastic Sorting, Processing & Markets
  - Secondary Sorting & Processing
  - Existing Research and Further Study
  - Wrap Up & Next Steps
- *Julie Colehour* reminds the room of the Responsible Recycling Task Force Goals, Outcomes and Role;
  - **Short Term Goal:** To help identify near-, mid- and long-term actions in response to reduction in export markets for mixed recyclable materials due to China National Sword policies.
  - **Longer Term Goal:** To help establish commitment across the region to responsible recycling and domestic sorting/processing of curbside recyclables.
  - **Outcomes:** Prepare a report with actionable items and recommendations for future action by all; if possible, develop interim tools for communications and other topics that are more immediately available.
  - **Role of Task Force:** Not to make decisions, rather to learn about the problem, understand activities that are being implemented elsewhere and opportunities for change. They will provide guidance on next steps that will be brought back to county advisory committees and decision makers.
- *Julie Colehour* next addresses the June 18 meeting minutes, which were sent out to the task force via email. *Julie* notes that no feedback or change requests were received, therefore the meeting minutes from the June 18 meeting are approved. The room affirms.
- *Sabrina Combs* shares information about Bothell City Hall's facilities and emergency details.
- *Jeff Gaisford* provides an update on items discussed at previous task force meetings, including:
  - *Jeff* asked MSWMAC if they'd like recommendations brought to them following each task force meeting or if they prefer all recommendations be provided at the end of the year. MSWMAC requested receiving recommendations following the meetings.
  - *Jeff* notes that the meeting #2 recommendation to remove plastic bags and shredded paper from the blue bin and the meeting #3 recommendation to have a uniform system and way to deal with waivers, as well as updates on the communications toolkit, will be brought to the advisory committee in their September meeting.
  - *Jeff* notes that he will ask the Solid Waste Advisory Committee how they'd like to receive recommendations during their next meeting.

## **Agenda Item #2:** Fiber Markets Overview (*called to order by Julie Colehour at 9:08am*)

### **Discussion:**

- *Julie Colehour* introduces *Kevin Kelly* of Recology to provide an overview of International Fiber Markets.



- *Kevin Kelly* begins, noting that he will walk through the latest news and developments in international markets, starting first by reading a statement from the National Recycling Council's May 16 press release on China and Recyclables:
  - *"The good news and bad news is that customer enthusiasm for recycling is strong. The public wants to recycle, but they express that enthusiasm by recycling materials that are not eligible. A combination of "wishful recycling" and insufficient enforcement of quality is proving very damaging to the industry – abysmal and volatile markets, a dirty product that is not a reliable 'commodity', closed plants, and programs that are hurting economically... We cannot continue to act and behave as if business as usual will offer a solution to today's issues. We must fundamentally shift how we speak to the public, how we collect and process our recyclables, and what our end markets accept and utilize to truly recycle."*
- *Kevin Kelly* continues, providing the following updates:
  - China implemented a complete ban on the import of materials from May 4, 2018 – June 4, 2018.
  - Since June 4, inspectors have been added onsite to inspect all materials being brought into China. Materials brought in will be subject to the 99.9% standard.
  - China has announced the goal to implement a total ban by 2020. There is speculation that a total ban could happen sooner.
- *Phillipa Kassover* asks for clarification on what the total ban is restricting, which *Kevin Kelly* confirms as the import of recyclable materials.
- *Kevin Kelly* continues with the following updates:
  - Other countries like Thailand and Vietnamese are moving toward a ban as well.
  - China announced a few weeks ago that they are restricting the list of ports that will be eligible to receive materials.
  - China is starting to grant licenses to certain mills providing approval to process materials, which reinforces the earlier intention to shut down dirty mills and only grant processing access to certain mills. It is possible that just 10 or so mills will be allowed to process. Currently, one company with two mills is making up half of the processing volume.
  - Domestically, this mean that backlogs are continuing in some places and prices continue to fall, with third party organizations showing the average price for the region has dropped to \$1.50 per ton for mixed paper.
  - *Kevin Kelly* adds that some people are questioning whether this is part of the president's trade war and notes his take that the ban didn't start because of the trade war but may have taken a turn due to the fact that productive and open conversations are being stifled.
  - *Kevin Kelly* continues his update, stating that about 40% of the banned materials are paper and that mixed plastics continue to be very weak. As for 1-2 plastics, prices have increased in part due to the recent increase in oil prices.
- *Ken Marshall* asks what primary markets Recology is using
- *Kevin Kelly* replies that they are primarily using India, noting that one of the issues with other markets like India is the increased amount of time that it takes for containers to return to pick up more supply.
- *Julie Colehour* asks if Recology, and other MRF representatives in the room, are doing anything in particular to clean up paper bales.
- *Kevin Kelly* replies, stating that Recology has increased staffing at their facility by 15% and has slowed down the line by 15% so that more sorters are looking at materials more slowly. In addition, Recology is



being more robust with upstream communication, more aggressive about rejecting loads, and are tracking materials closely so they know when contaminants are introduced. *Kevin* adds that secondary markets are being more specific about the materials that they want, and that moisture is an increasing concern for markets like India.

- *Julie Colehour* asks if Waste Management or Republic have anything to add.
- *Emily Newcomer* notes that changes at *Waste Management* are in-line with changes described by Recology.
- *Sego Jackson* notes that he has heard that MRFs are trying to separate materials into new mixes and asks MRF representatives to comment on the mixes they are after.
- *Kevin Kelly* shares that Recology is still creating a mixed paper grade, noting that they looked at what it would take to create a newspaper grade mix and found that they don't have enough volume of newspaper to make it worth it. *Kevin* adds that this could be in response to the decline in newspaper use and that browns and cardboard continue to be a challenge, as does film.
- *Rob Van Orsow* asks what the term brown is referring to, which *Kevin Kelly* answers as referring to anything that is brown color, such as a cereal box.
- *Joe Casalini* comments that different mills require different mixes, providing the example of the Port Townsend mill, which used to take phone books because they had equipment to do so. *Joe* adds that you create mixes based on what will fill orders.
- *Penny Sweet* asks if problematic films become residuals.
- *Kevin Kelly* replies, stating that plastic has always been residual and that cardboard has been tolerated, but for some the quality of cardboard fiber is stronger than paper fiber so it can be a better deal and create a stronger fiber base for pulping to have a mix. *Kevin* adds that his understanding of the issue is that browns are being perceived as dirt.
- *Stephanie Schwenger* comments that a recent report from the National Recycling Council came out with credible information on the state of international markets, noting that she will send the report around to task force members.
- *Julie Colehour* thanks *Kevin* for his overview and introduces the next speaker on fiber markets, *Eric Elliott*, graduate student and Recycling Coordinator at Seattle University.

#### **Eric Elliott's presentation:**

- *Eric Elliott* begins by stating that the purpose of his research, which was conducted at Seattle University's Business School, was to look into the China National Sword campaign and how markets are affected. In particular, to assess the capacity of paper recycling markets in Washington State and the Pacific Northwest to determine if there are any opportunities for expanding mill capacity locally to accept mixed fiber that was previously sent to China.
- Additional background includes:
  - About a sixth of all US recycling went to China
  - Average national price of fiber fell from \$146/ton to \$5/ton in 6 months
  - Average US contamination rate is 5%, though in reality is much higher
  - The research report was done under the assumption that China will not lift the ban
- *Ken Marshall* asks if *Eric* looked at any of the numbers on the west coast when developing the 1/6<sup>th</sup> of the US stat, noting that numbers on the west coast are much different.



- *Eric Elliott* responds that in the full report they cite resources which overview the west coast specifically, and that he will send around the full report that includes these resources.
- *Eric Elliott* continues with the presentation, sharing the following timeline leading up to the China Sword ban:
  - 2006 – passed import regulations on recycling
  - 2013 – Green Fence started, enforcing these regulations
  - 2015 – Inspecting importer practices
  - 2017 – National Sword announced
  - 2018 – Blue Sky enforce the 2015 importer restrictions
- *Eric Elliott* shares a slide showing the economic model for post-consumer paper after the National Sword ban, commenting that paper supply and mixed fiber is different than your typical supply in that it is inelastic. *Eric* continues, noting that that price received for mixed paper doesn't have an implication for the quality of the mixed paper itself.
- *Eric Elliott* notes that our recycling rates have remained steady over the last 20 years, despite mixed paper recycling rates dropping over the last decade. *Eric* explains that the steady recycling rate is due in part to the increase in cardboard recycling that has made up for the drop in mixed paper.
- Next, *Eric Elliott* shows an economic model for the future supply and demand for post-consumer paper, which predicts that at some point prices will be so low that demand will begin to increase again.
- *Joe Casalini* comments that when both demand and pricing drops, quality standards increase and become difficult to meet. This means less money but higher quality standards. *Joe* adds that quality standards have been increasing in Seattle since the 80's due to the ever-growing market that the buyer has to pick from.
- *Eric Elliott* continues onto the next portion of the presentation which focuses on trying to expand demand for mixed fiber in local markets by looking into who is taking mixed fiber in the Northwest currently and what could be done to expand their capacity.
- *Eric Elliott* explains the high barriers of entry to the paper mill industry, such as high cost of equipment and operations and amount of regulations. *Eric* adds that these barriers have led to the general decline of the industry over the past 5 years and negative potential for growth.
- *Eric Elliott* describes the research conducted to develop a catalog of working paper mills in Washington and Oregon and overall findings:
  - 17 mills in WA and OR
  - 10 of the 17 mills are currently accepting post-consumer fiber
  - Of the 10 mills that are accepting post-consumer fiber, 6 of them are accepting only OCC (corrugated cardboard)
  - Of the remaining 4, only NORPAC and Sonoco are accepting mixed grade paper
- *Eric Elliott* explains that his team created a spreadsheet detailing information about the mills and people contacted as part of the research. *Eric* adds that he will share the presentation and the excel sheet following the meeting.
- *Eric Elliot* describes some of the challenges that mill owners and operators shared, including:
  - Glass contamination



- PCB ink contamination—especially from inland empire where there are increased regulations on ground water quality
  - Wax coated and aseptic containers
  - Browns becoming an issue for some of the local paper mills
- *Eric Elliott* notes that other consultants who have done this research say it will be \$10-\$40 million per mill in paper mill upgrades in order to process more post-consumer paper
- *Eric Elliott* wraps up by sharing the following future steps:
  - Potential new mills in Port Angeles and Newberg (both have been closed for a long time but may open back up)
  - Success depends on system-wide collaboration
- *Linda Knight* asks if *Eric* looked into the capacity of each of the mills that are currently taking OCC or mixed paper, and if so, what is their capacity to handle volumes coming out of the Pacific Northwest?
- *Eric Elliott* replies that they spoke with the Department of Ecology and mill owners to find out how much material was being processed at given points since 2007 and found that some mills were producing more 5-8 years ago than they are now. *Eric* adds that they know there is capacity available, as long as mills haven't shuttered.
- *Jennifer Jessen* asks if research also looked at virgin paper.
- *Eric Elliott* replies that research was focused on the 10 mills that are accepting post-consumer fiber, mentioning that if more research is done he'd suggest looking into mills that aren't accepting post-consumer concepts and see if we might be able to substitute what the virgin sources that they are using.
- *Lisa Sepanski* adds that Oregon DEQ and the Department of Ecology are going to do a study that expands on the topic to look at current mills and their mixed capacity.
- *Phillippa Kassover* asks for additional information on what PCB contamination is.
- *Eric Elliott* explains that PCB is a chemical found in inks. *Eric* adds that the paper pulping process is a water intensive process so in areas like the inland empire where water quality is already a bit contaminated with PCB, the additional PCB found in ink that leaks during the pulping process combines with existing water contamination to lead to high PCB contamination.
- *Phillippa Kassover* asks if soy-based inks have the same problem,
- *Eric Elliott* replies that he doesn't believe that soy-based inks are toxic or have PCB ink in them, but isn't certain.
- *Sego Jackson* points out the fact that ink used in paper is causing contamination when it comes to recycling paper is a good example of an upstream problem that is creating issues downstream.
- *Joe Casalini* comments on the need to be careful when saying that mills are coming on board and that we have certain capacities since historically Northwest mills haven't taken materials from the Northwest, so just because a mill is located in the Northwest doesn't mean they will buy Northwest paper.
- *Eric Elliott* adds to *Joe's* comment, noting that one of their main challenges with the research was finding mills that were open to talking about pricing and plans for the future.

#### Action Items:

- *Stephanie Schwenger* to send the National Recycling Coalition webinar on Quarterly Market Developments for distribution to task force.
- *Eric Elliott* to provide full report and mill catalog for distribution to the task force.



### **Agenda Item #3:** Plastic Sorting, Processing & Markets (*called to order by Julie Colehour at 9:49am*)

#### **Discussion:**

- *Julie Colehour* introduces *Sego Jackson*, who will present on behalf of Merlin Plastics, who was not able to attend.
- *Sego Jackson* first provides background on the topic by directing the room to review the findings from the *Domestic Processing of Mixed Plastics* meeting that took place in Seattle on January 30, 2018. *Sego* explains that the meeting was held by Seattle Public Utilities and King County to understand the issues around sorting and processing in King County and Canada. About 60 people attended the meeting.
- *Sego Jackson* continues, explaining that the meeting confirmed that 1 and 2 plastics are being separated out in the sorting process while the other mixed plastics are being baled together and shipped to China. *Sego* explains the importance in understanding that not everything that gets baled is actually recyclable as mixed bales don't include just 3-7 but also missed aluminum and 1 and 2 plastics, which are of greater value.
- *Sego Jackson* adds that Asian countries are the predominant source of marine plastic pollution and points out whether it makes sense to ship plastics to countries that already have issues with plastic pollution.
- *Sego Jackson* notes that the meeting also confirmed that most mixed plastics were being shipped to Asia and that regional MRFs were restricted in their ability to further sort domestically due to equipment upgrades, etc. *Tony Moucachen*, president of Merlin Plastics in British Columbia, attended the January meeting and spoke about Merlin, a Plastic Recovery Facility (PRF), and provided an overview of their ability to further separate mixed plastics, bale them, and send them to market.
- *Sego Jackson* wraps up the background information and begins the presentation on Merlin Plastics:
  - History of Merlin Services:
    - 1987 - Founded in Delta, British Columbia to process post-industrial plastics.
    - 1991 - Added post-consumer natural and colored HDPE (eg. milk jugs).
    - 1992 - Added post-consumer rigid HDPE material (eg. pails, buckets).
    - 1995 - Added post-consumer Film to the processing line.
    - 1996 - Developed a post-consumer PET processing line in British Columbia.
    - 2004 - USA Patent No. 6,752,192 was issued to Merlin Plastics for the pre-wash technology that was first developed in 1996.
    - 2006 - Obtained FDA approval for post-consumer PET Flake for food contact.
    - 2009 - Peninsula Plastics Recycling (PPR) was incorporated as a full service PET recycler and processor in Turlock, California.
    - 2010 - Obtained FDA approval for post-consumer PET Pellet for food contact.
    - 2014 - Acquired an interest in ORPET, an Oregon recycler, and partnered with the Oregon Beverage Recycling Cooperative to recycle PET bottles in Oregon.
    - 2015 - State-of-the-art container sortation facility in New Westminster, BC was commissioned to sort cartons, ferrous and non-ferrous cans, plastics and glass.



- 2016 - Acquired assets of Entropexin Sarnia, Ontario. Upgraded and re-designed the sorting, washing and processing systems and we are now currently processing 3 to 7 containers on the East Coast.
- Transportation:
  - One of the findings from the January meeting was that there is capacity at Merlin to take Seattle's plastic for further processing.
  - Transportation costs from King County to Merlin's sorting plant in British Columbia is approximately \$0.01 - \$0.02/lb and approximately \$600/truckload.
- Sorting:
  - Sorting costs money and is determined by the mix of plastics and how much needs further processing.
  - Just like all other sorting activities, additional sorting at Merlin has a cost.
  - Merlin charges a set fee to receive and sort plastic. Merlin sorts the bale to determine the bale make up and makes a payment back to whoever provided the plastic based on the commodity value of materials in the bale.
- Sorting Process:
  - British Columbia has a producer responsibility program where the package producers finance curbside and other recycling costs. This has helped to establish Merlin's process and is why it's possible for materials to already have been separated from paper by the time it reaches Merlin's facility.
  - Merlin utilizes a MRF-like sorting process, except without much paper. There is also less glass that needs to be sorted out due to British Columbia's container composite bill.
  - A series of optical sorters are dedicated specifically to sorting out plastic by resin category. For example, one sorter will separate out PET, another will sort out polypropylene, and so on.
  - *Sego Jackson* notes that the long series of optical sorters dedicated to separating out plastic material is something that regional MRFs in the United States do not utilize.
  - *Sego Jackson* also adds that plastic bags are not collected in curbside systems in British Columbia and that Merlin does not want to receive dirty plastic bags from King County.
- Revenue:
  - The most valuable products for Merlin are PET and natural colored HDPE
  - Merlin uses RecyclingMarkets.net to get reliable pricing information and commodity values used to determine pricing.
- Curbside Plastic Containers to Pellets:
  - Another unique aspect of Merlin is that they process containers into flakes and pellets by specific resin type rather than into a bale of mixed plastic bottles.
  - Pellets are shipped by rail or truck with 99.9% of market ready pellets going to markets in North America.
- Container Circular Path:
  - Merlin utilizes a circular system, therefore keeps pellets domestic rather than shipping them to Asian and South East Asian countries.





- *Lisa Sepanski* notes that we are inquiring as to whether *Tony Moucachen*, president of Merlin Plastics, can attend the September meeting on EPR.
- *Joe Casalini* asks what products are made with the pellets and flakes once shipped off.
- *Sego Jackson* replies that Merlin works with the Canadian auto industry, so some of the pellets are going to auto parts, but he isn't aware of other specific uses of the pellets beyond that. *Sego* describes the chemistry lab that Merlin has so their customers can specify the exact characteristics of pellets needed and adds that anyone who has the chance to tour Merlin should.
- *Stephanie Schwenger* comments that it's great that there is a local manufacturer, so long as it's not cost prohibitive for haulers to sell their recyclables. *Stephanie* asks if SPU or other entities are looking at ways to ensure that materials are recycled closer to home rather than sent to South East Asia.
- *Sego Jackson* replies that it does cost more money to sort domestically but that international markets like Vietnam have a limited value for materials. *Sego* adds that while it would cost three times more to send the materials for sorting at Merlin than it would to send to Vietnam, sending to Vietnam poses issues from responsible recycling standpoint. *Sego* adds that there are not specific tools in place to ensure that materials go somewhere domestically unless standards are set. *Sego* provides the example of standards that could be set by the UTC or in contract amendments where domestic sorting is specifically required.
- *Sego Jackson* continues, noting that immediate next steps are outlined in the summary from the *Domestic Processing of Mixed Plastic* meeting held in January. *Sego* encourages the room to use a responsible recycling framework when thinking about contracting and how to deal with recyclables.
- *Phillippa Kassover* asks what happens to plastic bags that are returned to grocery stores.
- *Sego Jackson* replies that bags in curbside are problematic because they are dirty and that bags returned to grocery stores are kept separate from other recyclables and are therefore kept from becoming contaminated.
- *Phillippa Kassover* asks if plastic bags returned to grocery stores can be pelletized.
- *Sego Jackson* confirms that plastic bags can be pelletized but clarifies that Merlin does not want post-consumer film to go across their line.
- *Linda Knight* notes that *Sego* began the presentation by saying that Merlin Plastic operates under a system of producer responsibility, which changes the dynamics.
- *Sego Jackson* interjects, noting that he spoke with *Kevin Andrews* of Merlin Plastics and asked if they really are sorting all materials through optical sorters, which *Kevin* confirmed that they are. *Sego* uses this example to point out that it's not just producer responsibility that is footing the bill, it's also making sure that it happens.
- *Linda Knight* notes that another topic that has come up is ethics, adding that there is not recognition that many of the materials we consume in the US are coming out of China. *Linda* suggests that one of the ways we can begin to impact long term strategies is to look at where our common recyclables are produced and start putting more pressure on the need for producer responsibility in those areas.
- *Sego Jackson* replies that he agrees with *Linda* that producer responsibility of some sort is necessary, highlighting sorting 3-7 plastics as an example of where producer responsibility would provide us with



both financing and control. *Sego* adds that, while many materials come from China, the issue is that dirty recyclables are sent back.

- *Tony Donati* asks who is looking at bringing plastic to Merlin as an option. Is it SPU, King County, the state?
- *Sego Jackson* replies, noting that additional conversation needs to be had and tools need to be looked into on the topic.
- *Hans van Dusen* adds that it is not complicated to establish a value-added requirement and see what the cost would be to customers, and that the city will look at this in terms of procurement to determine what the risk, value, and added expense would be. *Hans* adds that there has been some discussion around whether the city should do a pilot program to try out shipment to Merlin for a year and that regional involvement is probably where producer responsibility would come in.
- *Sego Jackson* adds that Merlin is looking for long-term business relationships to dedicate their resources to, therefore will take our plastics, but not as one off.
- *Phillipa Kassover* notes that separation of recyclables at the curbside, such as is done in Oregon and British Columbia, has been discussed previously, asking whether this is an important aspect to success.
- *Sego Jackson* shares his personal perspective that separation at the curbside is something most people would agree to if we could turn back time, but that there are many complexities and costs associated with retooling the system now.
- *Phillipa Kassover* asks if British Columbia is separating materials at the curbside.
- *Sego Jackson* replies that about half of BC is and half is not.
- *Lisa Sepanski* adds that glass in BC is completely separate.
- *Susan Fife-Ferris* notes that glass separation was integrated into the system about 10 years ago.

#### **Agenda Item #4: Secondary Sorting & Processing (called to order by Julie Colehour at 10:19am)**

##### **Discussion:**

- *Julie Colehour* introduces the next speaker, *Scott Farling* from Titus MRF Services
- *Scott Farling* shares the following background about Titus MRF Services:
  - Titus MRF Services started as an equipment developer for MRFs
  - Overtime, *Mike Centers*, the founder of Titus, saw that there are certain issues all MRFs struggle with and that do not have an easy fix.
  - *Mike Centers* first came up with the idea of a secondary MRF to meet the need for expensive sorting systems to sort plastics beyond the 1-2 bottles and in response to there not being enough mixed materials in the stream to justify the cost of new equipment.
  - In 2011, *Mike Centers* purchased a MRF and set it up as a secondary MRF geared towards sorting each individual resin and producing direct-to-mill commodities out of the small volume materials.
  - Since the China Sword ban, Titus has had to retool the secondary MRF model but continues to believe it is a good model to service the west coast.
  - Titus MRF Services has had a pilot secondary MRF in Los Angeles for 6 years.



- *Scott Farling* continues with his presentation:
  - Opportunity to Optimize:
    - The secondary MRF is not a replacement for primary MRFs, rather it helps existing MRFs to get materials ready for reclamation mills.
    - Secondary MRFs are able to regulate smaller volume materials that a primary MRF could only produce a truckload per quarter of.
    - In a facility the same size as a primary MRF, Titus can sort enough small volume material out to fill a truckload every couple of weeks.
    - Titus' Secondary MRF has specialty tools designed to deal with smaller format plastics which extends the ability to sort for the primary MRF.
    - As the material stream changes, one secondary MRF can retool instead of the ten facilities that are feeding it.
    - *Scott Farling* adds that his favorite part of the secondary MRF process is that once materials are collected, they can work with local businesses to encourage product stewardship without having an EPR program in place.
  - What is a Secondary MRF?
    - Secondary MRFs typically take yield loss of 3-7 plastics from primary MRFs.
    - For primary MRFs, it's usually a better deal to leave 3-7 plastics in the stream and ship it straight to Titus rather than sorting it.
    - 3-7 mixed plastic and yield loss is sent from the primary MRF to the secondary MRF where they separate out high-volume commodities before focusing on the small volume materials.
    - Any small volume materials left after sorting at the secondary MRF are sent for feedstock or to a landfill, with Titus controlling where it ends up rather than sending the material overseas.
  - Impact:
    - Provides blue bin accountability to the public
    - Extends existing MRFs the ability to adapt to the ever-changing blue bin
    - Reduces greenhouse gas generation
    - Reduces marine leakage
    - Creates jobs (each facility employs about 46 people)
    - Provides data to encourage product stewardship
  - Our Team:
    - *Mike Centers* is the founder of Titus MRF Services and has been working in the industry for a long time, starting with strategic glass recycling.
    - *Scott Farling* previously worked at Agilyx and got involved with Titus when trying to recover value from more difficult materials.
  - Our Plan:
    - Titus' plan is to develop three secondary MRFs on the West Coast, one in the Pacific Northwest, one in Northern California, and one in Southern California.



- Big focuses include providing jobs, benefiting the environment, and giving a positive return to investors.
- Financial Assumptions:
  - Processing fee target is \$1100/ton
  - There is a fee for primary MRFs to process at Titus, but the revenue from the materials is shared back with the MRFs.
- Continued Growth:
  - Initial plan is to focus on the West Coast
  - 13 additional markets have been identified across the US where facilities could be placed
  - As more materials are received, Titus can start to produce and market larger volumes.
  - As more material is produced, Titus will have greater influence over regional brand owners and packaging producers to encourage them to consider voluntary producer responsibility.
- To Build the PNW Secondary MRF, the following is needed:
  - Enough material to make it work economically
  - Supply agreements from primary MRFs
  - Policy to keep materials from being exported
  - Assistance with site selection and permitting
  - Grants to offset some costs
- *Ken Marshall* asks what the cost would be for a primary MRF to add in all the same equipment that Titus has?
- *Scott Farling* replies that the cost is significant (in the \$500,000 - \$1M range), adding that the bigger issue is trying to get all equipment to fit into the space of the MRF.
- *Ken Marshall* asks if a change to legislation would change that.
- *Scott Farling* replies, noting that MRFs do a good job getting materials out to market, but it's the last 10% of small volume materials that are the problem. *Scott* adds that a MRF could add all the equipment needed to sort the small volume materials, but that it ultimately makes more sense to send the small volumes to one place so that more truckloads can be made.
- *Ken Marshall* asks where in the Pacific Northwest the new facility would be.
- *Scott Farling* replies that they are looking all over the place and his personal opinion is that Tacoma would be a good location due to the ports that can accept material from Oregon as well.
- *Julie Colehour* asks what the timeline is for getting agreements with MRFs locally.
- *Scott Farling* replies that they are working with MRFs on all fronts, both in PNW and CA and will focus outreach wherever they get most traction.
- *Joe Casalini* asks what dynamics would have to change in the current market in order for secondary MRFs to really work.
- *Scott Farling* replies that a lot of material that secondary MRFs take are landfill bound and that they include both mixed plastic and other residuals. *Scott* adds that this is how Titus' financing works and is



also a new challenge as one year ago Titus didn't have to charge a fee for materials, rather could support themselves on commodity value alone. *Scott* explains that the idea in charging for materials is to support financing of the model as well as to provide a share back to primary MRFs.

- *Julie Colehour* asks what the haulers and cities in the room think about leaving the 3-7 plastics in the residuals.
- *Penny Sweet* notes that, from a city perspective, what matters is consistency in sharing the same story with all regional communities.
- *Susan Fife-Ferris* reiterates *Sego's* earlier point about responsible recycling and the need to focus on a shared goal of diverting materials for higher and better uses. *Susan* adds that the cost will drive decisions, but so too should the environmental and social benefits.
- *Phillipa Kassover* comments on our resident's dedication to recycling and belief that materials put in the bin are recycled. *Phillippa* notes the challenge in finding a method that works financially and practically to meet this expectation and recycle as much as possible, as responsibly as possible.
- *Scott Farling* notes the importance of figuring out how to recycle and recover value from the blue bin, even as the recycling system continues to change.
- *Lisa Sepanski* notes that a secondary MRF would work well in tandem with an EPR system at the state level and asks if *Scott* has done any analysis on how an EPR mechanism or legislation might work.
- *Scott Farling* replies, noting that Titus has not spoken on the mandatory aspect of EPR, but does recognize that secondary MRFs would work well within an EPR system. *Scott* adds that, based on Titus' success in LA, it's clear that brand owners want their products in the blue bin and notes that it's been easy to work with brand owners to make progress towards voluntary EPR.
- *Kevin Kelly* asks what type of impact *Scott* thinks secondary MRFs would have on upstream contamination.
- *Scott Farling* replies that he would not message this right away, rather would stick with messaging as is and focus on harmonizing the program.

**Agenda Item #5:** Existing Research and Further Study (*called to order by Julie Colehour at 10:45am*)

- *Lisa Sepanski* presents on current studies and studies recently conducted, including:
  - Series of studies being done by Oregon DEQ in partnership with the Washington Department of Ecology:
    - **Mixed Paper Recycling Markets:** In-depth study on the current regional domestic use of mixed paper, concentrating on the residential stream.
      - Research being conducted by Bill Moore (Moore and Associates) in the West for The Recycling Partnership.
      - Depending on information gleaned from Recycling Partnership study, the State of Oregon may possibly partner with the State of Washington to expand the scope of work.
      - Scope of work for the Moore and Associates study includes:



- Identify current regional domestic use of mixed paper, concentrating on residential paper
  - Identify current regional mills making investments to use mixed paper
  - Identify mills that are not using mixed paper but that could do so
  - Identify barriers to regional mills for increased use of mixed paper
  - Possible supplemental information (not included in Moore's research):
  - Transportation needs and costs to get material to these mills from Oregon
  - Any specifications that differ from the ISRI specification for (54) Mixed Paper
- **Plastic Recycling Markets:** Builds off the state of California study being conducted for the American Chemistry Council to look at combining information from 2013-2014 Oregon Plastic Recovery Assessment Project.
  - Anticipated research results include:
    - Understanding of the capacity to use or market each separate plastic resin/form, if properly separated and prepared.
    - Amount of each resin/form that could be effectively recovered and utilized from different commingled mixes, and how much could not be utilized. Mixes being reviewed include:
      - All bottles
      - Current Metro mix
      - All rigid packaging (BC model)
      - All rigid plastic (New York City mix)
      - Pretty much all plastics (Los Angeles mix)
    - Long term expectation of the price recovered resin could be sold for, relative to virgin resin prices.
    - Flexible plastic packaging and products
    - Potential to have existing processors and collectors work cooperatively to aggregate materials into one facility and provide processing economies of scale needed to properly capitalize such a facility.
    - Potential for alternative end markets such as fuel, pyrolysis, gasification, or as a reduction agent for virgin steel production.
  - **Market Development Policies/Incentives:** DEQ is helping to fund a multi-client research project by Reclay Steward Edge (RSE), in conjunction with More Recycling, to compile information on effective market development policies, incentives, and activities, including compilation of results from market development programs such as the Pennsylvania Recycling Markets Center, and past programs including the Clean Washington Center and the Chelsea Center for Recycling and Economic Development.
- *Lisa Sepanski* continues reviewing the following research being conducted by Evergreen College's *Center for Sustainable Infrastructure*:



- **Sustainable Materials Management: A Life Cycle Approach to Reducing Northwest Waste Streams**
  - Part of a series of studies called the *Big Goals for 2040* focused on rethinking materials management in an effort to comprehensively detail an overall 25-year vision and pathway for Northwest infrastructure investment.
  - King County SWD, Oregon DEQ and Washington Department of Ecology are sponsors and partners of the project.
  - The report will look at:
    - Critical waste management challenges in the Northwest
    - What sustainable materials management is and why it's important to address the impacts of materials, including carbon emissions across their full life cycle
    - How to create circular loops to ensure recycling materials as production feedstocks to fuel local economies
    - The potential of extended producer responsibility systems to reduce waste and generate circular production systems
    - How to develop infrastructure and buildings with sustainable materials through measures such as California's Buy Clean Act;
    - How the waste management sector can build regional resilience and disaster preparation; and,
    - International leading-edge policy strategies, and their applicability to the Northwest.
  - Work on the report will begin in **September 2018 and is envisioned for release in summer of 2019.**
- **Initiative to Illuminate Successful USA Recycling Market Development Practices and Activities**
  - Looking at what has worked to accelerate market development for recyclable materials and to help stabilize the recycling system
  - RSE USA and MORE Recycling proposed an initiative to document lessons learned from past recycling market development activities and bring forward best practices to support new market development initiatives.
- *Julie Colehour* asks the room if there are any additional studies that should be included and tracked. There are no additional studies shared by the room.

**Agenda Item #6:** Wrap Up & Next Steps (*called to order by Julie Colehour at 10:51am*)

**Discussion:**

- *Julie Colehour* reviews the action items as follows:
  - *Stephanie Schwenger* to send the National Recycling Coalition webinar on Quarterly Market Developments for distribution to task force



- *Lisa Sepanski* to send *Eric Elliott's* full report on paper recycling in King County and catalog of paper mills for distribution to task force
- *Colette Marien* to send above materials and draft meeting minutes to task force for review and approval
- *Julie Colehour* reminds the room that the next meeting will take place on August 24 in Kirkland
- *Julie Colehour* notes that, due to speaker availability, the topics for the August and September meetings have switched and that there is a potential for additional adjustments to occur to the next three meetings based on developments in legislation and speaker availability.