

THE GREEN FENCE OF CHINA

We offer the full story on the biggest issue facing fiber and plastics exporters and brokers today – China's Green Fence. Whether a firm is collecting, sorting, selling or shipping recyclable materials, this is affecting all areas of the recycling industry.

by Dylan de Thomas and Henry Leineweber

Even under the best circumstances, trade with China poses some big challenges for those in the recycling industry. There are the obvious communications and cultural barriers, and the expansion of the export market has pushed prices for materials up over the better part of the last decade and a half, intensifying competition between firms in the U.S. To top it off, there are also a labyrinth of complex laws and regulations spanning both sides of the Pacific that exporters of material need to successfully navigate.

As recently as last February, recycling firms that successfully navigated this system were rewarded with a profitable outlet for their materials, even if in sub-par condition. But that is no longer the case. Materials shipped to Chinese ports now sit behind a green fence, unable to reach their final, intended destination after traveling thousands of miles.

This is the story of the origins of the Green Fence and the sea-change taking place in the recycling industry as a result.

The rise of the Green Fence

To fully understand the Green Fence, it's necessary to look back in time, all the way to the halcyon days of 2006. In March of that year, the Chinese State Environmental Protection Administration issued a notice banning radioactive materials, plastics containing polychlorinated bisphenols, explosive or combustible items, and items listed on the country's national hazardous waste registry from imports of nonferrous scrap. Four years later, in March 2010, the Chinese EPA passed rules banning the import of loose scrap materials. These two sets of rules also specify that imported bales of scrap materials must have contamination levels of 1.5 percent or less to be accepted into the country.

At the time, the rules went largely unenforced in China, and

as a result, were largely unknown outside the country. This was to the detriment of the Chinese. Many sources who spoke to *Resource Recycling* for this article shared horror stories of Chinese Customs agents opening containers to find loads of unsorted trash and organic waste, or inspecting a shipment of plastics only to find syringes and other medical sharps. Relative to the volume of material shipped to China from North America, Europe and elsewhere, these incidents were rare, but were nevertheless frustrating for Chinese Customs officials and embarrassing for the country.

A series of high profile incidents throughout 2012 continued to raise the ire of Chinese officials. In November, 2012, for instance, the British newspaper *The Daily Mail* reported that 17 containers totaling 420 tons of scrap plastic material had been turned away by the Chinese for exceptionally low quality, with the Chinese going so far as to issue a warning to the U.K. Environment Agency that it "may enforce regulations that would spell disaster for Britain."

Additionally, throughout 2012 and into this year, the U.K. Plastic and Films Association repeatedly warned its members and those in the press that a Chinese crackdown on imports of scrap material was imminent, after receiving word of growing Chinese frustration with some exporters that shipped waste into the country under the guise of recyclable material. Similar bans had been implemented that year in other Asian countries, such as Malaysia.

These mounting tensions were playing out against a backdrop of political change in China. In November 2012, Xi Jinping succeeded Hu Jintao as President of the People's Republic of China. Some sources speaking with *Resource Recycling* speculated that high-profile media coverage of the waste imports within China have prompted the new administration to take aggressive steps to address the issue. Others have spoken to what appears to be a genuine concern for the environment from the new Chinese president.

Regulating the regulation

Beginning in February of this year, China began systematically and

uniformly enforcing the 2006 and 2010 regulations on scrap imports. Operation Green Fence, as it's known in the West, is not a new set of laws or regulations, but instead a concentrated enforcement operation of laws already on the books. This means that while the enforcement action has been confirmed to conclude Nov. 30, since it is based on current laws, it could be restarted at any time, for any reason, without advance warning.

Speaking at the 2013 Institute of Scrap Recycling Industries Convention in April, Wang Jiwei, vice president of the China Nonferrous Metals Industry Association, said the enforcement action by the government has a definite "psychological component" and is designed to send a message from the Chinese government to shippers of waste material.

The regulations mandate that incoming bales of material must have contamination levels of less than 1.5 percent (see Sidebar 1 for bale specifications). The enforcement of the tougher standards has hit mixed plastic bales and Nos. 3-7 plastic bales especially hard, as well as shipments of mixed paper (see Sidebar 2) and auto shredder metal residue. The slowdown while containers are inspected has caused domestic containers to either pile up at Chinese ports or be shipped back to the U.S. at a shipping cost to Los Angeles/Long Beach of approximately \$2,100 per container.

The effects on exports

RISI's senior economist, Hannah Zhao, noted during her presentation at Waste Expo that U.S. recovered paper exports dropped by about 7 percent in the first quarter of 2013, saying that some of that dip was due to the Green Fence.

Zhao noted that, in the short-term, the enforcement of the law is, indeed, hurting recovered paper exports and will "cause problems for Chinese paper mills." In the long-term, however, Zhao said that the effects of the Green Fence will be far-reaching. Particularly that the higher standards to obtain AQSIQ [China's General Administration of Quality Supervision, Inspection and Quarantine] regulatory approval will continue for recovered fiber exporters.

Those higher standards will likely reduce the amount of fiber coming into China from Europe and the U.S. and this will lead to more incentive for China to increase domestic recovered paper collection.

Capacity for processing recovered fiber is dramatically increasing in the coming

years, with recovered fiber giants Lee & Man and Nine Dragons, among others, planning to have a combined millions of tons of capacity coming online. Domestic MRFs in China are also seeing growth, though Zhao said that those facilities are far smaller than the mega-MRFs being built in the U.S. or Europe. She told *Resource Recycling* that there is not enough financial incentive to build more robust facilities because of the negotiating strength of mills there. "Some are partially owned by mills," said Zhao, "but most are small, independent operations."

Processors in peril?

"I first heard the term 'Green Fence' after we had stockpiled around 100 bales of mixed plastic," said Hilary Gans, Facility Operations Contract Manager for RethinkWaste, otherwise known as the South Bayside Waste Management Authority (SBWMA).

Gans' story is not unusual. MRFs around the country, but particularly those on the West Coast, which traditionally relied upon the export market to consume a appreciable amount of the recyclable materials they produced, were seeing bales pile up at their facilities. One plant manager in California had to ask his employees to move their cars so the MRF could have more room to stack plastic bales.

And those are the stories of the facilities

that can have the space to store the materials. Others don't, and, anecdotally, there are stories of some smaller MRFs around the West Coast that are landfilling some of the materials that they couldn't sell.

Many were concerned that this was "just another move to manipulate the market in [China's] favor," said one facility operator. "Like the market shut-downs for paper around the Chinese New Year."

"Is it permanent?" asked one facility operator. "Because if it is, we'll retool."

Patty Moore, president and CEO of Moore Recycling Associates, a consultancy that specializes in the recovered plastics industry thinks that retooling, ultimately, is the answer.

"If [facilities] can't retrofit, the market is going to decide for them," says Moore, who also has extensive experience in the exporting of plastics. "The equipment is available to handle this (see Sidebar 3). It is worth investing. And I see adapting already."

The silver lining of the Green Fence

The irony is that many in the U.S. recycling industry couldn't be happier the export valve for many exporters has been shut off.

"There have been complaints over the declining quality from mills over the last 10-15 years. Maybe this is the wake-up call

Sidebar 1 – Bale specifications

From the Institute of Scrap Recycling Industries (ISRI) with input from the Association of Postconsumer Plastic Recyclers and other groups.

(1) Residential Mixed Paper

Consists of a mixture of various qualities of paper not limited as to type of fiber content, normally generated from residential, multi-material collection programs.

- Prohibitive Materials may not exceed 2 percent.
- Outthrows plus prohibitives may not exceed 5 percent.

Mixed Sorted Nos. 3-7 Bottles and Containers

This grade primarily consists of mixed bottles and containers from residential recycling programs in which most of the PET bottles, HDPE bottles, and Mixed Bulky Rigid Plastics have been positively sorted out. This grade may include some PET and HDPE but primarily consists of all leftover plastics materials remaining after they have been picked out. Non-bottle containers may consist of items such as cups, trays, clamshells, and tubs. Glass bottles and tin or aluminum cans are not allowed.

Product: Mixed household items

Source: Postconsumer material

Contamination: Total allowed—2 percent listed below

- Bulky rigid plastic such as crates, buckets, pails, toys, furniture, etc.
- Non-specified plastic or non-plastic material.

the industry needs,” explained Greg Rudder, editor of *Pulp & Paper International*.

“Short term pain, long term, it’s fantastic. Overall, it’s a very good thing,” said Moore. “This will increase the bale quality being produced by domestic sorting facilities, meaning more materials will truly be recycled.”

Many around the industry were applauding the move, as it addressed long-standing concerns from consumers of recovered materials – paper mills and plastics reclaimers alike.

“The Green Fence should be looked at as an opportunity for MRFs, municipalities, **“The Green Fence should be looked at as an opportunity for MRFs, municipalities, stewards and reprocessors to develop domestic markets in North America.”**

stewards and reprocessors to develop domestic markets in North America. Every time we export a container of resources around the world, we are giving up our independence, jobs, investment and a bit of our wealth one load at a time,” said Joe Hruska of Hruska & Associates, an Ontario-based environmental consultancy. “I can only say those MRFs or organizations that have not supported local processing capacity for recyclable materials because they could earn a cent or two a pound more, now is the time to examine your selling/supply practices.”

Many argue that the crackdown will actually stimulate more recycling in the U.S. and make the domestic market more competitive with Chinese buyers. Some sources have told *Resource Recycling* that it has already stimulated increased activity in the domestic market.

“The tougher recyclable plastic export environment has already stimulated an activity increase in the domestic marketplace for non-bottle rigid plastic,” say Elizabeth Bedard, director of the Rigid Plastics Recycling Program for the Association of Postconsumer Plastic Recyclers. “Over the last few months, additional markets have developed for bulky rigid plastics, perhaps in response to the Green Fence.”

“This is an atmosphere where it will make sense to invest in non-bottle rigid processing capacity,” echoed Moore.

The future of the Fence

But just because enforcement is ending in November, doesn’t mean its effects won’t be far-reaching. Most players that we spoke with


Sidebar 2 – Supplier Letter of Awareness from recovered paper exporter

- Zero tolerance for banned items, such as e-scrap, textiles, green waste, animal/human waste, insects, animals, food waste, medical waste, etc.
- Prohibitive levels must be maintained below 1.5 percent on a bale-by-bale basis. Common examples include wood, metal, glass and plastic.
- Material shipped as “waste paper” but incorrectly declared is cause for customs penalty, including shipment of convertible items such as rolls, reels, boxed or plastic-wrapped paper, cut sheets, etc. Wire baling is the only acceptable form of packaging for “waste paper.”
- Wet material (exceeding 12 percent “air-dry” standard) creates an environment for degradation where material can pick up dirt, inviting additional scrutiny, regardless of prohibitive level.
- Loading photos for each container must be sent on or before the cut-off date for each booking, so that they may be reviewed in a timely manner. Shipment will be suspended and potentially returned for any failure to do so.
- Make sure each container is clear of foreign matter/debris before loading (items such as those for blocking/bracing and items such as moisture absorbent gel packs left by previous shipper).

said that it likely will not go back.

“This time feels different. I think it will emerge that we’re not going back to the status quo,” said Moore.

China’s paper mills, for example, will eventually need to accept fiber from the U.S. and Europe – the fiber coming out of the U.S. is too valuable to not be consumed.

But the push-back on quality is real and will continue. 

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Sidebar 3 – Knocking down the Green Fence with equipment

All of the recycling equipment manufacturers and recycling industry insiders interviewed for this story echoed the same sentiment – that new, robust recovery facilities can produce materials, keeping the prohibitives below 1.5 percent and can make it through the Green Fence. “Modern MRFs aren’t going to have a problem” says Brian Wells of Bulk Handling Systems.

Less sophisticated MRFs could have issues, however, particularly those that don’t currently have optical sortation technologies. And, while incredibly effective, some facilities simply don’t have the money or the space – or sufficient tonnage – to install that type of equipment. Optical sortation devices can cost upwards of \$500,000, not including the additional conveyor belts and other physical infrastructure needed to install the machines.

“The obvious band-aid for MRFs struggling [to reach Green Fence

standards], is application of optical technologies,” said Wells. But, he warned to “be very suspicious of a silver-bullet solution.”

“I wish there was a magic pixie dust that we could sprinkle on any existing MRF to help them with the export market,” said Chris Hawn of Machinex. “We are hearing more and more customers speak of improving their commodity quality, whether it be [for] containers or fiber. Each MRF that has contacted us has their own specific problem and the result is that we are retrofitting systems with several different pieces of equipment. “Whether it’s age-based or quality-based, we’re beginning to see the interest in retrofits [from older MRFs],” said John Inman of CP Manufacturing, Inc. “The most cost-effective way of cleaning up a material stream is to change out all the screens. The screening tech is better and safer and the discs are less expensive than pulling in a new optical sorter.”