

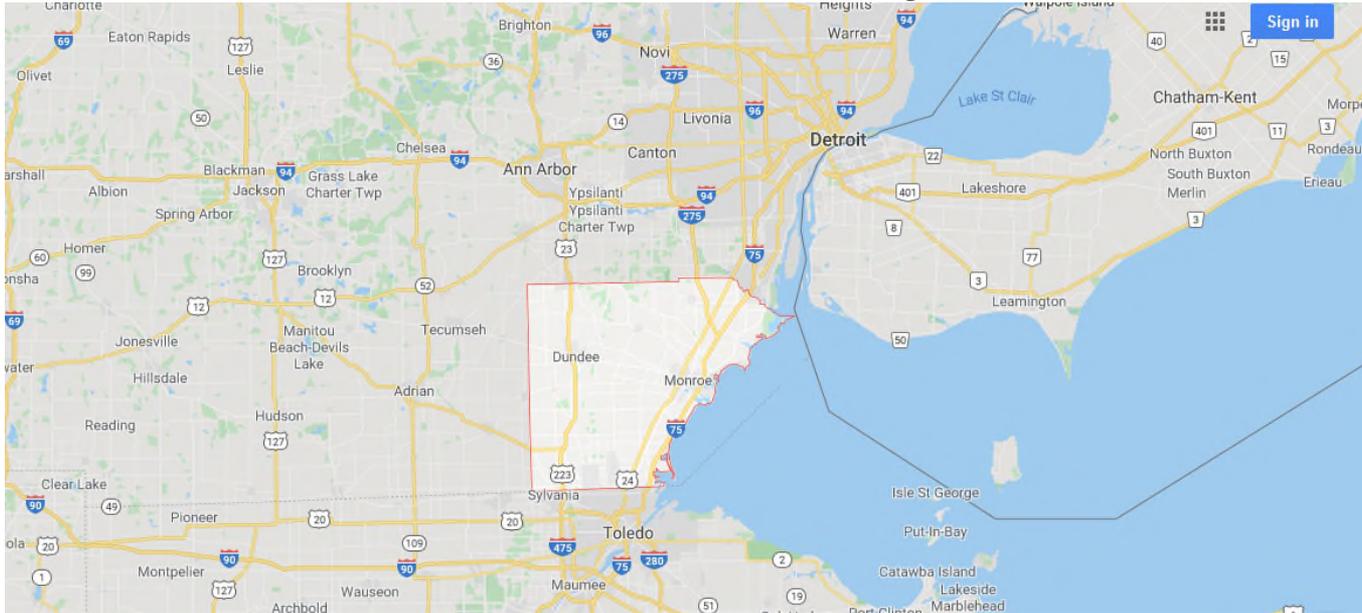
Bob Morrow - Environmental Warrior



Topics

- Reduction in Recyclable collections
- State of MI – Increase in landfill
- Why are landfill Increasing and Recycling Decreasing
- Plastics – What should be do with them
- The world of Waste to Energy
- Fuels composed of Plastics
- RDF 2.0

Monroe County MI



Monroe County recycling bins filling up

By [Dean Cousino](#)

Monroe News staff reporter

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Posted Jan 13, 2020 at 1:30 PM

Monroe County's program was already extremely overburdened before Frenchtown Township canceled its curbside recycling program Dec. 1, Dan Rock said.

Frenchtown Township – Kills Recycle

- Changed Collection Companies
- Township sighted
 - Increase in contaminated /unacceptable items.
 - Dirty pizza boxes, Grocery bags, Glass ????? *Maybe something other than clear glass????*
 - Declining market for purchasing recyclables.
 - Substantial cost to tax payers.
 - In 20 years of living in the township, they never worried about that!!

20th Feb. 2020

- State of MI releases 2019 Solid Waste Report
 - 8.5% increase in Solid Waste Disposal from 2018
 - Largest Increase for year to year basis in past 10 years
 - 1% reduction in Imported Waste from Canada and Ohio



LANDFILL – Northville MI



Detroit Stoker Company

Home Front

- Since 1979, MI has had a 0.10¢ bottle deposit
 - Cleaned up the road sides, but painful during the college days
- The Wife – embraced recycling.
 - That means I did too... 
- We have noticed that amount of Waste has increased by 2x bags/week. Basically a +50% increase in both bags and volume
 - But honestly, Cardboard does not pack well in Hefty bags.

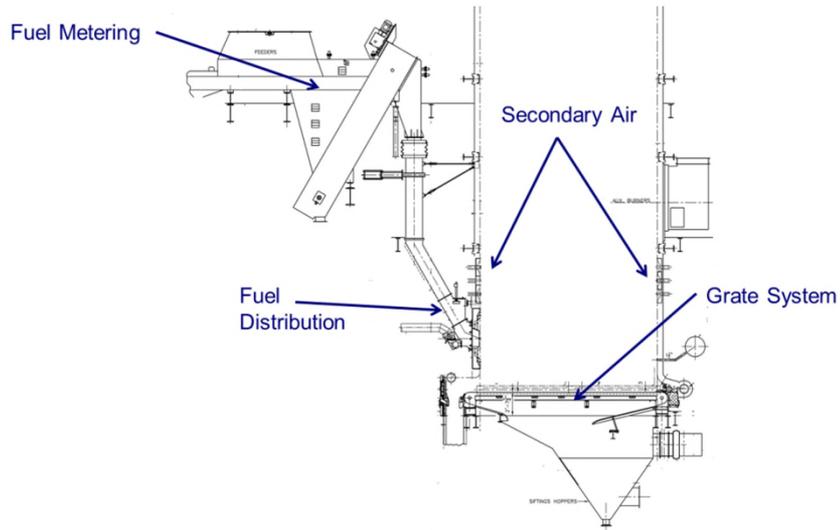
Recycling

- It is unclear if recycling is dying off due to all materials or if just plastics
- Mr. Bessette – discussion point?
- Is this all tied to:
 - Chain’s “National Sword” policy, enacted in January 2018 to ban the import of most plastics and other materials. *BTW – What are the other materials?*

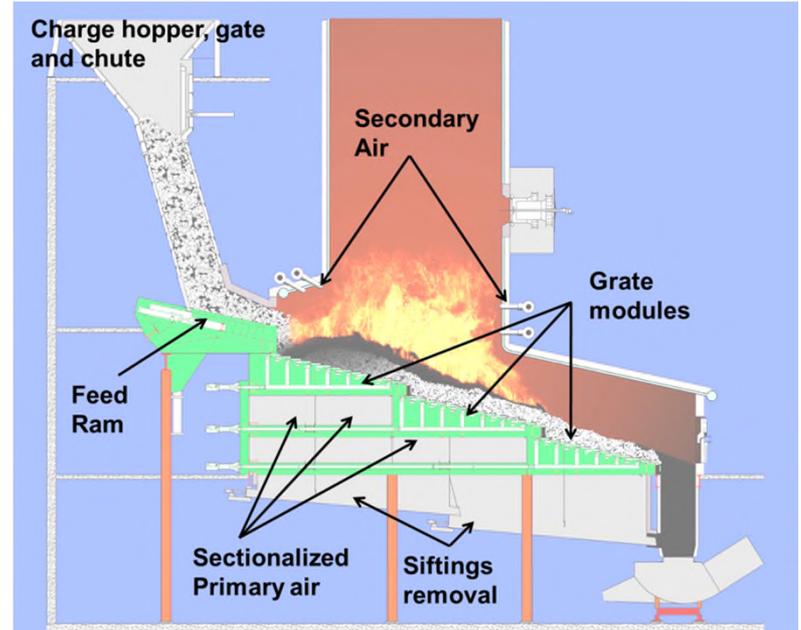
Refuse Fuels

- MSW (Municipal Solid Waste)
- RDF (Refuse Derived Fuels)
 - Both been around for decades, both have say... Issues, but sufficiently mature enough to resolve.
- Yet, landfills still are effectively less costly
 - And the biogas industry is pretty excited about the credits for biogas usage (AKA – Reduction of Methane). [Mr. Bessette you should have someone in audience to dive into Landfill/biogas topic.](#)

RDF –Trommeled, Metal Separation, Sized (Engineered)



MSW – Home to Pit, Shove it in as delivered



Refuse Fuels – (Never say **Waste**)

- RDF & MSW
- Corrugated Recycle mills provide OCC as Fuel



2005

Same Mill
– Changed
Process.



2009 more recovered plastics

2008

- Evaluate a 100% plastic fuel
 - Hand Picked of “Bad” Plastic
 - Bob – discussion point of bad plastics. During this time the guys trying to validate this plastic fuel said they simply removed the dark colored Plastics.

2008 – 100% plastic fuel

- How client was pitching the free burning aspects of their miracle fuel at manufacturing site.



2008 – 100% Plastic fuel Combustion test

- Comparison against
 - Eastern and Western Coals
- Quick Results
 - CO very good due to lower moisture
 - NOx was better then expected, Less then Eastern coal but more then Western coal. Moisture again likely
 - Detected SO₂ – WOW.... They were NOT happy with that realization.

Convergent/Greenwood fuel

- Has been fired on a number of grates W/ coal and Biomass
- 60-80% Cellulose Fiber
- Remainder Polymer/plastic content
- Passed the NSW litmus test
- 10,500 Btu/lb. HHV
- **Not a commercial, only an example of product that has been commercially proven and fired on a continuous basis**



RDF 2.0

- Renewed interest in RDF in Western Europe
- Existing installations designed and built 1995-2005 for C&D (Construction and Demolition Refuse).
 - They are running low on fuel sources these days
- There are new installation inquiries

New Names for RDF

- Germany
 - EBS “Ersatzbrennstoff” Translates to Substitute Fuel
- France
 - CDR or CSR “combustible dérivé refuse/combustible solid refuse

RDF 2.0

