

## Chuck Hastings Modeling a Paper Mill

## Myself

 President of Southern Maine Model Railroad Club (SMMRC)

- HO Scale modeler, mid-construction of layout (Moosehead & Millinocket subs)
- Life-long in the hobby, modeling CN, CP, CMQ (BAR), & NBSR
- Career in paper logistics & transportation

#### About this Presentation

- Overview of How Paper Mills Work
- Railcar Types Seen at Mills
- Rail Operations at Mills

Will <u>NOT</u> Cover Politics Regarding Mill Closures (or questions regarding that topic)

#### Why Model a Paper Mill?

They fit any era (paper mills around longer than railroads)

- Create 'trainloads' not just carloads (wide variety rolling stock)
- Adds complexity with layout operations, plenty of switching to be done but also branch/main line running of entire trains
- Can scale as large or as small as needed to fit space, or a centerpiece of a layout

#### Paper Mill Complex

A Paper Mill is a Paper Mill is a Paper Mill

- 'Paper mill' is a deceptive term, a mill complex may consist of focused or very broad assets & operations related to any paper of the paper making process
- Reality is, a mill **complex** consists of several separate smaller plants
- Examples of types of plants associated with paper making
  - Paper mill (non-integrated)
  - Pulp Mill/Refinery

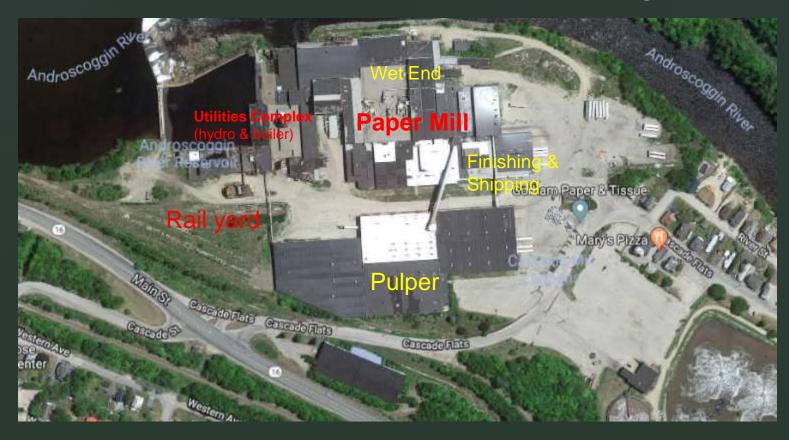
- Biomass/Wood Yard/Chipping Operation
- De-Inking/Re-pulping Facility (recycled or CPW products)
- Energy production/Utilities complex
- Finishing or Off Site Facility

#### Fully Integrated Mill



- Wood Yard, Pulp Mill, Utilities Complex, Paper Mill in series a high efficiency design
- Fully Integrated mills represent the highest railcar generators, but takes up the largest layout space

#### Non Integrated Mill



- Represents smaller railcar potential with smaller footprint but easier to model
- Ex. Gorham Paper & Tissue, produces paper

- Paper mill, utilities complex (derelict?), no pulp mill
- Rail or truck in loads of pulp (feedstock), some raw materials

## Paper Making 101

- Paper (an industrially dried wood fiber matte surface) = pulp (chemically processed wood fiber) + finishing surface (chemicals/raw materials)
- So to run a paper machine I need...
  - Pulp (made on site or transported in as feedstock)
    - Pulp making on site requires raw material wood inputs + nasty chemicals
  - Slurry (wet clay used to fill and smooth surface)
  - Materials for strength, appearance, ect (chemicals, starches, latex, ect)

Let's bring these in by rail!

Remember: volume of inputs = volume of outputs

Raw materials mostly come in by rail (cost, efficiency and safety reasons), finished product will see more truck but still healthy volumes of rail

## Rail Car Types (Inbound)

#### Woodyard, Pulp Mill & Utilities Complex

Log Cars and/or Chip Cars (woodyard)

- Tank Cars of Chemicals & Raw Materials – Note they usually are marked or placarded!(Pulp mill, some to paper mill)
- Coal Cars & High Side Gons (Utilities)
- High Capacity PD Hopper Cars with dry chemicals (Pulp or Paper)



## Rail Car Types (Outbound)

### Paper Mill & Pulp Mill

Plate C Boxcar (mostly pulp, some paper)

 Plate F (hi-cube) Boxcar (mostly paper, some pulp)

Some boxcars may be vented





#### Where do I Start?

- Recommendation: Do not buy 'out of the box' paper mill kit
- Remember, mill complex consists of several smaller plants so you can mix and match smaller kits
- Kit-bashing and custom buildings work best

 Use a reference mill, there are several to pick from regionally with thousands of pictures readily available online

## **Other Considerations**

Trucks and intermodal

- One boxcar = 4-5 truckloads/containers, truck yards typically have mix of many well known trucking companies
- TOFC/COFC terminal to service paper mill nearby
- Specialty Moves
  - Oversize & one off rail moves of large equipment mill components, have been known to happen!
- Mill owned Shortlines
  - A lot of mills have their own yard switching RRs, a great chance to freelance a railroad without having to commit to a huge roster
- Sounds and lights
  - Mills produce a lot of sound and have a lot of lights—make yours vibrant and alive!
- Off Site Warehouses
  - Paper mills tend to own or contract with off site warehouse & finishing facilities

## Questions?

# Thank you !