

NEW WEST GYPSUM RECYCLING

Positively Affecting Where We Live



# URBAN MINING

February 19, 2020

# Agenda

- Background Information
  - Company Information
  - Sources of gypsum for B.C.
  - Gypsum recycling – why does it matter?
- Issues
  - Supply of scrap gypsum
  - Demand for recycled gypsum
  - Financial
- Stakeholder involvement
- New Investment?

# New West Gypsum Recycling

- Founded in Vancouver
- Over 35 years of drywall (gypsum) recycling experience
- Global capacity is now 800,000 tonnes per year - over 6,000,000 tonnes recycled
- Eight facilities in operation (5 in Europe and 3 in North America) using patented process, proprietary equipment
- Primary customers are drywall manufacturers in Europe and North America
- Drywall recycling – separates paper from the gypsum core and the gypsum from the core is used to manufacture new drywall
- Operates like a transfer station accepting drywall scraps for a tipping fee
- New West is a processor not a waste management company and does not offer bin services

# Sources of gypsum for B.C.

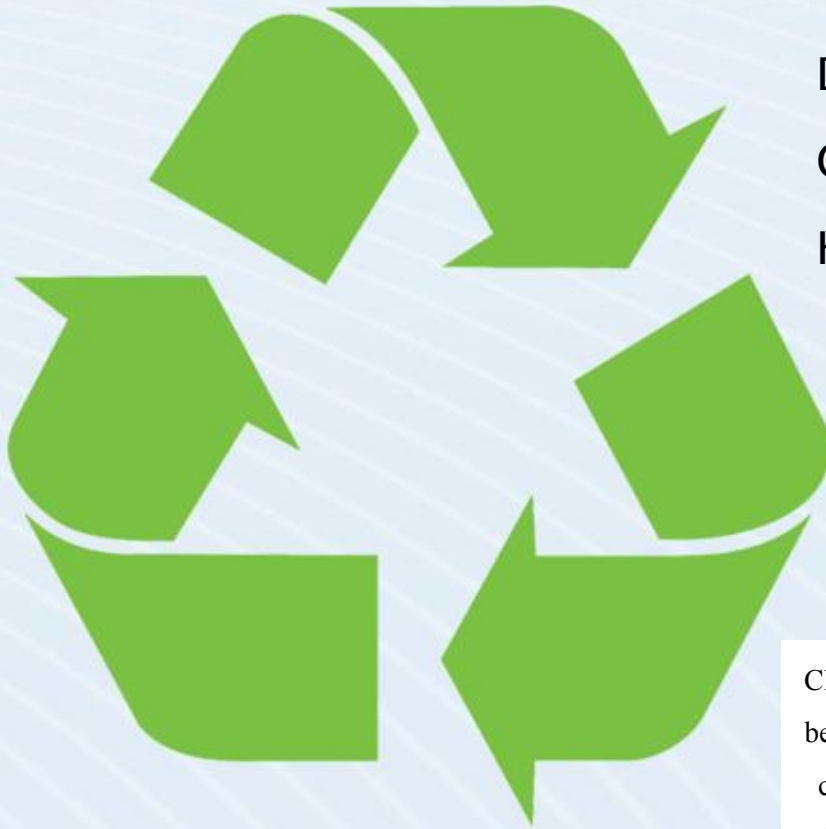
- Current
  - Gypsum rock – Mined gypsum is primary source – Interior of BC or Mexico
    - Cost - Commodity cost is low but transport significantly increases landed cost
    - Quality - varies – purity and non gypsum constituents (e.g. clay)
  - Recycled Gypsum – Secondary source
    - Cost – Landed cost is lower than cost of mined gypsum
    - Quality - varies – primarily related to scrap source and contaminants
- Future.
  - Gypsum rock – Mined gypsum will continue to be primary source – Interior of BC, Mexico or Other distant sources
    - Cost - Commodity cost will remain low but transport costs will rise
    - Quality - varies – dependent upon source
  - Recycled Gypsum – Secondary source but use will increase
    - Cost – Landed cost is lower than cost of mined gypsum
    - Quality - varies – primarily related to scrap source and contaminants
  - Other – Not likely viable (e.g. Gypsum created by scrubbing flue gas emissions of coal fired generating stations)



# Why does recycling gypsum matter?

- Preservation of natural resources
- Gypsum can be recycled over and over again in drywall (wallboard) manufacturing
- Decrease environmental impact of mining activities
  - Energy use – Fuel for heavy (mobile) equipment & energy for other equipment (drills, crushers)
  - Other environmental impacts of mineral extraction
- Transportation cost and environmental impact
  - CN has provided estimates of the carbon emissions throughout a supply chain
    - Rail – 15.2g CO<sub>2</sub> per tonne-km @ est. 800 km – 12.2 kg CO<sub>2</sub> per tonne
    - Marine vessel (bulk) - 4g CO<sub>2</sub> per tonne-km @ est. 4,000 km – 16 kg CO<sub>2</sub> per tonne

# Closed Loop Recycling



100% True Recycling

Drywall scraps to new drywall

Closed Loop Recycling

Highest or Best Use

Closed-loop recycling means that recycling of a material can be done *indefinitely* without degradation of properties. In the case of gypsum wallboard, conversion of the used product back to raw material allows repeated making of the same product over and over again.

# Gypsum scrap – supply issues

- Quality of gypsum scrap supply – acceptance criteria, contamination
- Costs to dispose/recycle
- Leakage
- Volatility of inbound tonnage – storage
- Coordination of policies and regulation
- Attitudes toward recycling
- Wallboard product types

# Recycled gypsum–demand issues

- Quality of recycled product – risk of contamination
- No requirement for manufactures to utilize recycled product
- No incentives for use – purchasing policies
- Processing and product changes
  - Changes to manufacturer’s product
  - Quality and consistency of gypsum supply
  - Changes in recycled product specification
- Plant capabilities/limitations
- End market development



# Recycled gypsum–financial issues

- Tipping fees and product revenue
- Operating cost increases – Adapting to market demands
  - Screening inbound supply
  - Quality –product and quality control
- Volatility of inbound tonnage – storage
- Local volumes – acceptance criteria
- Economy of scale required

## What are the solutions to improve recycling success:

- Recognize gypsum waste as a resource and maximize use of recycled material: urban mining
- Create and support effective policy measures to promote recycling activities, highest or best use, and the circular economy, including market development programs
- Develop programs that benefit local manufacturers using recycled materials (e.g. green procurement)
- Decrease the risks associated with processing and using recycled materials (de-risk)
- Design products enabling high-quality recycling of materials and substituting additives enabling cleaner material cycles
- Collaborate with other stakeholders in the stewardship of the waste arising from products

## What are the solutions to improve recycling success:

- Embrace a culture that actively promotes a circular economy
- Continue to evolve technology to improve product and to reduce processing cost
- Facilitate the development of well-functioning markets for recycling gypsum
- Avoid mixing wastes and contaminating recyclable materials and avoid shipping contaminated materials to recycling facilities
- Provide an efficient and effective collection infrastructure
- Facilitate the recapture of resources by preventing leakage

# New Investment?

- Given the proper investment environment investment will be available for:
  - Increases in capacity/productivity
  - Improvement in the quality of the inbound and outbound material
  - Better or higher use of outputs (eg paper in gypsum recycling)
  - Employment
  - Better collection systems/processes