

Bagasse Storage

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Bundaberg

Overview

- Bundaberg Sugar operates 6 mills in Queensland
- Bagasse is stored in varying quantities at all of these factories
- Bagasse used for a variety of purposes
- Some stored bagasse is transported to other sites for use

Overview – cont'd

- Bagasse stockpiled at most mills for boil-outs and start-ups
- Bagasse stockpiled at some mills for use on co-generation, fuel substitution and fuel provision for out of season processing
- Quantities in the order of 5,000 to 35,000 tonnes have been successfully stockpiled to date
- Larger quantities are expected to be stockpiled from 2005 onwards
- What are processes involved ?

Bagasse Outloading



- Outloading is done via chutes to semi-enclosed outloading buildings
- Most sites use rigid body trucks with oversized bodies to transport to a local stockpile
- Tableland Mill uses a FE loader from outloading building to stockpile due to its proximity to the mill

Bagasse Stockpiling



- Several methods used
 - Large pile / piles
 - trucks and loader work on top of pile
 - Pile covered or semi-covered when complete
 - Used in NQ – higher rainfall areas
 - Multiple formed piles
 - Trucks and loader work beside piles
 - Piles profiled for water run-off, rather than covered
 - Used in lower rainfall areas

Bagasse Stockpiling - Multiple formed piles uncovered



Bagasse Transport



- Transport from outloading to storage to reclaim on site
 - Front end loader to rigid frame body truck similar to stockpiling
 - Load not generally covered
- Transport to another site
 - Front end loader to walking floor semi-trailer
 - Load covered

Reclaim

- Truck based systems
 - Dump from truck to pad or direct to reclaim hopper and push in with a front end loader
- Front end loader direct
 - Dump from front end loader to reclaim hopper

Truck based systems





Bingera Bagasse Storage Expansion

- Steam efficiency optimisation program undertaken 2001 – 2003
 - Bingera – focused on boiler efficiencies to generate more excess bagasse
 - Secondary air quantities and distribution
 - Instrument tuning for optimum performance
 - Replace bagasse feeder drives for better control
 - Millaquin – focused on boiler and process steam efficiency to reduce steam%canne
 - More widespread use of 1st effect vapour for panstage and heaters
 - Boiler controls upgrade

Bingera Bagasse Storage Expansion

- Excess bagasse quantity increased
 - ~ 20000 tonne 2001 season
 - ~ 36000 tonne 2004 season
- Excess bagasse usage profile changed
 - 2003 season demonstrated improvement in boiler efficiencies and significant increase in excess bagasse quantities
 - Millaquin's improved steam efficiency minimised excess bagasse requirement in season
- Bagasse storage requirements 2003/4
 - Estimated an increase of 20-25,000 tonnes storage capacity would be required

Bagasse Storage Pad Construction



- Construction was completed during 2003 crushing season
- Local material was used for compacted profiled base
- Road base material was used for the top surface to maintain most weather access
- Piles were marked to be built ~ 100 x 25 m
- ~ 15000 cu m was cut and filled to profile the site
- In service September 2003

Bingera Bagasse Storage Expansion

- Constructed capacity for ~ 25,000 tonnes extra storage
 - New storage area located approximately 900 m from the mill
 - Purpose built with the inclusion of:
 - Compacted fill with road base surface provides most weather access
 - Profiled for drainage under the piles to minimise the potential for wicking and spontaneous combustion
 - Profiled for drainage of rainfall run-off and leachate to the adjacent recovery dam
 - Vegetation buffer on two sides protect prevailing wind direction
 - Discrete piles separated for fire protection
 - 209 ML recovery dam
 - provides fire fighting supply
 - Leachate containment and recovery to irrigation
 - Management procedure for dam









Bagasse Storage Considerations

- Issues affecting bagasse storage, transport and use
 - Environmental impacts
 - Dust
 - Neighbouring properties
 - Road transport
 - Personnel involved in bagasse handling and working in the factory
 - Noise
 - Location and sensitivity of neighbours
 - Waterway/Groundwater contamination
 - Risk issues
 - Fire
 - Spontaneous combustion
 - Arson
 - Degradation
 - Managed storage time
 - Well designed storage areas and systems

Bagasse Storage - Future

- Bagasse is a renewable resource
- Comparatively low environmental impact potential as a fuel
 - Low toxicity, minimal heavy metals, relatively clean burning material
- Expect increasing trend in bagasse storage and reuse
 - More efficient factories to produce more excess bagasse
 - Larger quantities stored
 - Re-use for co-generation, fuel substitution, boil-out/start-up will continue
 - Other alternate uses for bagasse are likely to be identified, eg. Particle board, paper, chemical extraction, etc

PRESENTATION COMPLETE