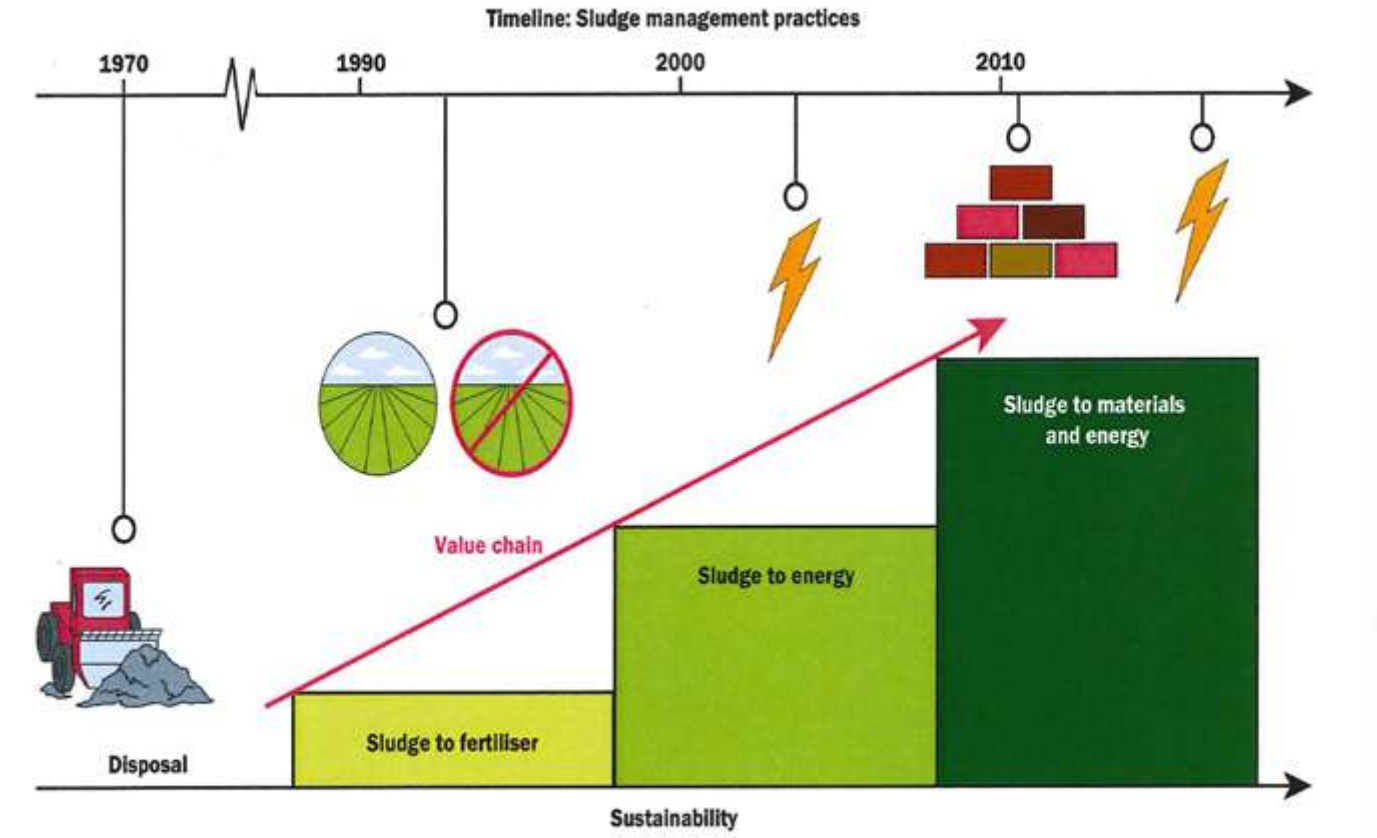
TasWater

Welcome

Dr Dharma Dharmabalan
General Manager, Works Delivery

Sludge Management Practices: 1970 - 2013



Source: GWI

TasWater

North Region Biosolids Overview

Dr Bill Wood

Biosolids Recovery Methods TasWater (North)

❖**In situ without fully draining the lagoon**

- **Large Dredge, polymer & centrifuge/belt press & stockpile** A
- **Mini Dredge, polymer, Fan press, stockpile** B
- **Pump to Geo-bags, dry then stockpile** C
- **Pump to sludge bund, dewater, dry & stockpile,** D
- **Single facultative lagoon – pump & spread entire contents** E

❖**Drain supernatant from Lagoon**

- **Drain, dry over summer, dig out, stockpile** F
- **Drain, homogenise, pump to tanker and spread on land** G

A Longford 2008/09
B George Town (current)
C Longford 2006
D Longford 2006
E e.g. Nile, Ross – feasibility?
F Prospect Vale (current)
G Longford & Bridport 2012/13 & TasWater (north west)

Sewage treatment process

BI-PRODUCTS:

Bi-product	Beneficial use
1/ Treated water	INDUSTRIAL USE; DOMESTIC, URBAN & AGRICULTURAL IRRIGATION
2/ Gas	POWER GENERATION, HEATING
3/ Sludge	TIP COVER; AGRICULTURE REUSE; COMPOSTING; ENERGY PRODUCTION
4/ Screenings.	PRESENTLY GO TO LANDFILL

Objectives

DEVELOP OPPORTUNITIES FOR THE BENEFICIAL RE-USE OF STP BI-PRODUCTS.

GENERATE A DEMAND AND MARKET FOR STP BI-PRODUCTS

LOOK FOR SYNERGIES WITH OTHER WASTES AND FOR VALUE ADDING

Biosolids Sources

Processes

CONTINUOUS OPERATIONS — **TI TREE BEND; AND 6 OTHER PLANTS**; **~10,000m³/yr @ 60% SOLIDS**

Fate	Use	Advantage	Disadvantage
ALL SLUDGE TO TT BEND	USED FOR TIP COVER	SUBSTITUTE FOR SOIL	HIGH GATE FEE >$70-130/M3
Or			
Reuse	AGRICULTURAL REUSE	LOW COST, $ RECOVERY? TASWATER CONTROLS	NEEDS TO DEVELOP DEMAND PLANNING PERMIT REQUIRED

LAGOONS PLANTS — **23 LEVEL 1 & 2 PLANTS** — **~12,000m³/yr @ 5-7% SOLIDS**

Fate	Use	Advantage	Disadvantage
PERIODICAL DE-SLUDGING	LAGOON OFF LINE, SUN DRY IN SITU, STOCKPILE	VARIABLE COST	LAGOON OFF LINE. MAY NOT DRY FINAL USE?
LAND APPLICATION PROCESS	REUSE ON FARMS .	INTEGRATED REMOVAL, & SPREADING LOW COST BENEFICIAL REUSE TASWATER CONTROLS PROCESS	PLANNING PERMIT REQUIRED


Houle PTO Pump Homogenising sludge at Bridport STP,
> 5,000m3 extracted & applied to land


GEA
Houle

Houle Tanker Working at Bridport, > 5,000m3 applied

TasWater South

Biosolids presentation

ANZBP Roadshow - Nov 2013

Brendan Hanigan

Biosolids South

- The history
- Current practices
- The risks
- The future
- Don’t mention the tender

Biosolids

- Land application commenced 10+ years ago
- Approx 18,000 dewatered tonnes/an + lagoon desludges
- On Target 100% beneficial reuse (so far in 2013/14)
- Half lime stabilised, Half anaerobic digested
- 1-2% class 3 – no stabilisation
- No stockpiling

Biosolids to land

- Distribution plans commenced – how much of which product will go where
- Management program (quality of biosolids, soil sampling)
- Relationships with transporters and end users through O & M team
- Reporting, quality and strategy through Assets team

Biosolids - Liquid

- 6,000 kL/an = 12 truck loads/week
- Plant to plant transfer mostly – becomes dewatered biosolids – cost?
- Some land application

Biosolids - Lagoons

- Contracted for desludging
- Dewatering approx 5 lagoons pa (centrifuge)
- Quality, quantity determined, disposal plan approved

Biosolids – Land application

- In-house management of transport and farmer
- Improved quality – metals reduction (15% extra to land)
- Risks
  - Trade Waste / Tankered Waste

Biosolids – Composting

- Class 3 product
- Trials commenced larger scale 2013/14
- EPA / council approvals being finalised

Biosolids – The future

- State-wide strategy?
- Tender?
- More composting?
- EPA / guidelines?
- Value of Biosolids / Carbon being recognised
- Cost of alternative fertilisers vs biosolids over last decade

TasWater

North West Region (aka CMW)

Biosolids Overview

Damien Finn

Sewerage Network (as at June 2011)

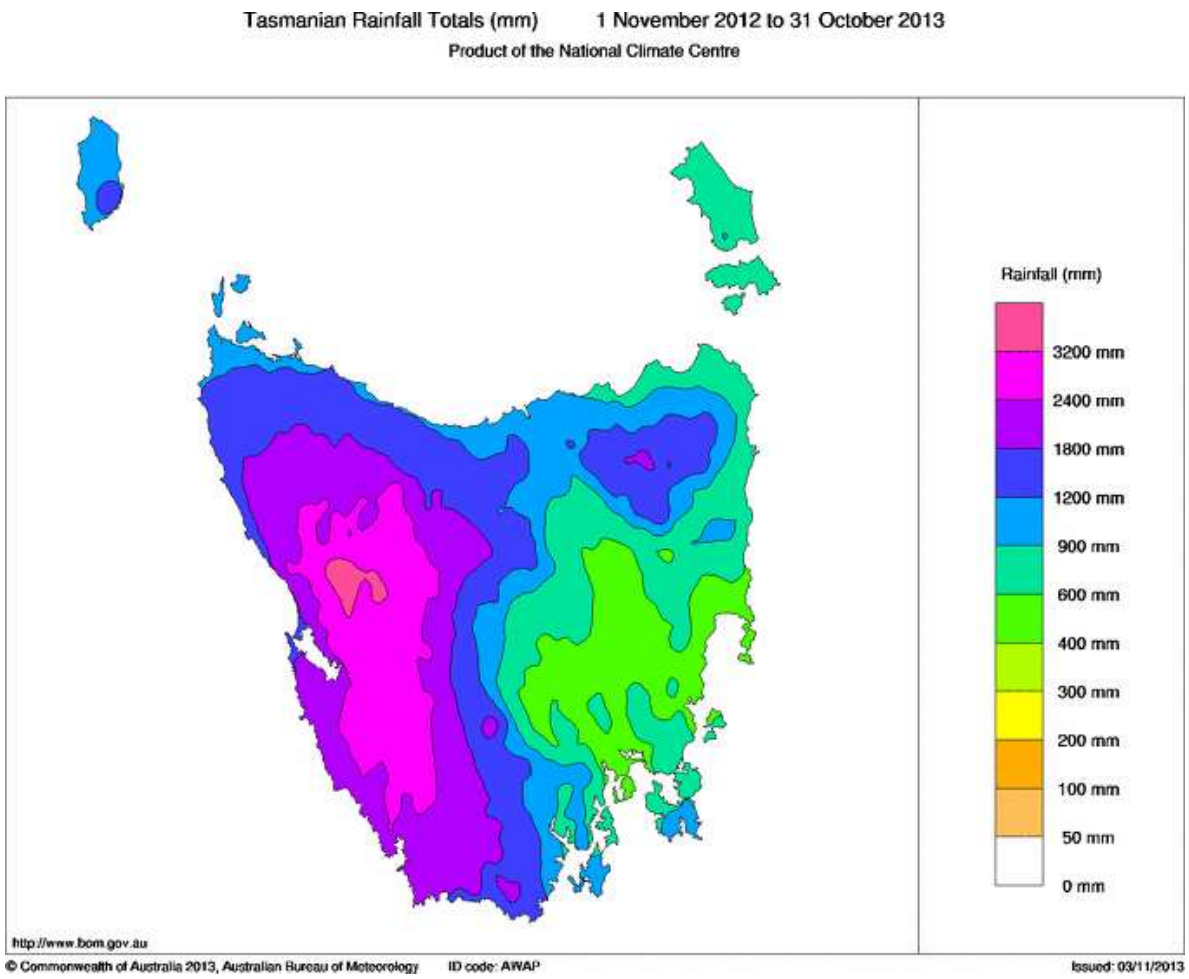
Serviced Area – 22,500 km2

Population Serviced: 83,184

Connections: 40,326

Sewerage Treatment Plants: 27

Why we don’t measure Biosolids in dst



Network Overview

Lagoon Systems

Currie (de-sludged to Geobags)

Port Sorell

Railton

Ridgley (de-sludged to Geobags)

Sheffield

Smithton (Drying beds. 20,000 m^3 de-sludged to geobags in 2012)

Stanley

Turners Beach

West Coast (Queenstown, Strahan, Trial Harbour, Tullah, Zeehan)

Network Overview

Major Plants

Burnie (9ML/day)

- Centrifuge (plant capacity upgrade required)
- Spirotainer transfer to DWM

Ulverstone (7.5 ML/day)

- Belt Press (reviewing alternate technologies – Fan Press).
- Historically composted on site (Council)
- Transported to DWM

Devonport (14ML/day)

- Belt Press (Unit to be replaced)
- Lime Stabilisation on site and land application by 3rd party
- Process being discontinued due to cost and OH&S issues

Wynyard (3 ML/day)

- Infrastructure requirements to be re-assessed following land application trials

Major Sites being Upgraded for SpiroTainer to address transport compliance and cost

Current Disposal Options

Dulverton Waste Management (DWM)

- Only certified facility currently accepting Class C Biosolids on the NW Coast (Landfill)
- Only commercial composting facility on the NW Coast

TasWater Gate Price:

2010/11: $37/tonne

2013/14: $63/tonne + $5/tonne Env. Levy

Waste Product or Value Add

ABOUT OUR COMPOST

ABOUT OUR COMPOST

PURCHASE

HOW IT'S MADE

Established in November 2008, the Dulverton Organic Compost Facility is the largest composting facility in Tasmania. Diverting approximately 20,000 tonnes of green waste and organic material from landfill per annum, this facility was opened to offer clients a cleaner and more sustainable waste management option.

Made to a scientifically calculated formula with regular testing throughout the composting process, Dulverton Organic Compost has been pasteurised making it weed and pathogen free and safe for all applications (see 'How it's made' for more info).

High quality organic ingredients are used in the compost recipe including fish frames, milk factory by-products, abattoir manure waste, bio-solids, municipal green waste and high quality wood chips. This diverse mix of ingredients makes for a nutrient rich final product, which resembles rich dark soil. Dry weight for Dulverton Organic Compost is around 600kg/m³.

Dulverton Organic Compost is made in compliance with Australian Standard 4454-2012 and is produced utilising the process controls within our Environmental Management System, which is certified under ISO 14001.

Benefits of Using Dulverton Organic Compost

- reduces nutrient leaching
- nitrogen is available in slow release form
- improves the ability of sandy soil to retain water
- improves drainage in clay soil
- supresses plant pathogens through the action of beneficial microorganisms and improving soil organic matter

- Single Disposal Option
- Price Taker
- Increasing Volumes

= Operational and Commercial Risk

As a business we need to develop other options and markets

Land Application Trials

- Plans finalised for direct land application trails for Sheffield (7500 m^3) and Wynyard (10,000 m^3) during the 2013/14 Summer
- Planning underway for trial of high solids application at Smithton (8,300 m^3)
- Trial outcomes will determine site infrastructure requirements and strategy

Risk Management – Land Application

Risk Management Plan

Risk Assessment

Biosolids Reuse Agreements

3 Way Agreement - between Taswater / ARM / Land Owners - *held by Taswater in perpetuity (3 Parts)*

Contract Agreement - *between Taswater / ARM*

Independent Auditing

All stages are audited by an independent environmental auditor *(Sludge analysis / Land capability assessment / Spreading)*

Report provided to Taswater at the completion of each stage

Reviewed to update Risk Management Plan and Risk Assessment

(Part A) contains the general contract - formalised agreement to LUPA, EMPCA, Tas Bioslids Guidelines, terms of agreement, access , insurances and dispute resolution

(Part B) provides for entry, assessment and determination of the suitability of the land for application

(Part C) provides for the application of biosolids to the land and for monitoring, Site Management Plan and associated obligations by parties

TasWater NW Region Biosolids Overview

Questions ?