

A Plea to MfE

Meet the Elephant - Biosolids

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OUR BIOSOLIDS AN EXAMPLE OF A WICKED PROBLEM IN A COMPLEX TIME

Watercare Provides Water and Wastewater Services to Auckland

In the 2030s we will We Create : 200,000Tpa Biosolids



That equates to up to 30 truck and trailers per day!

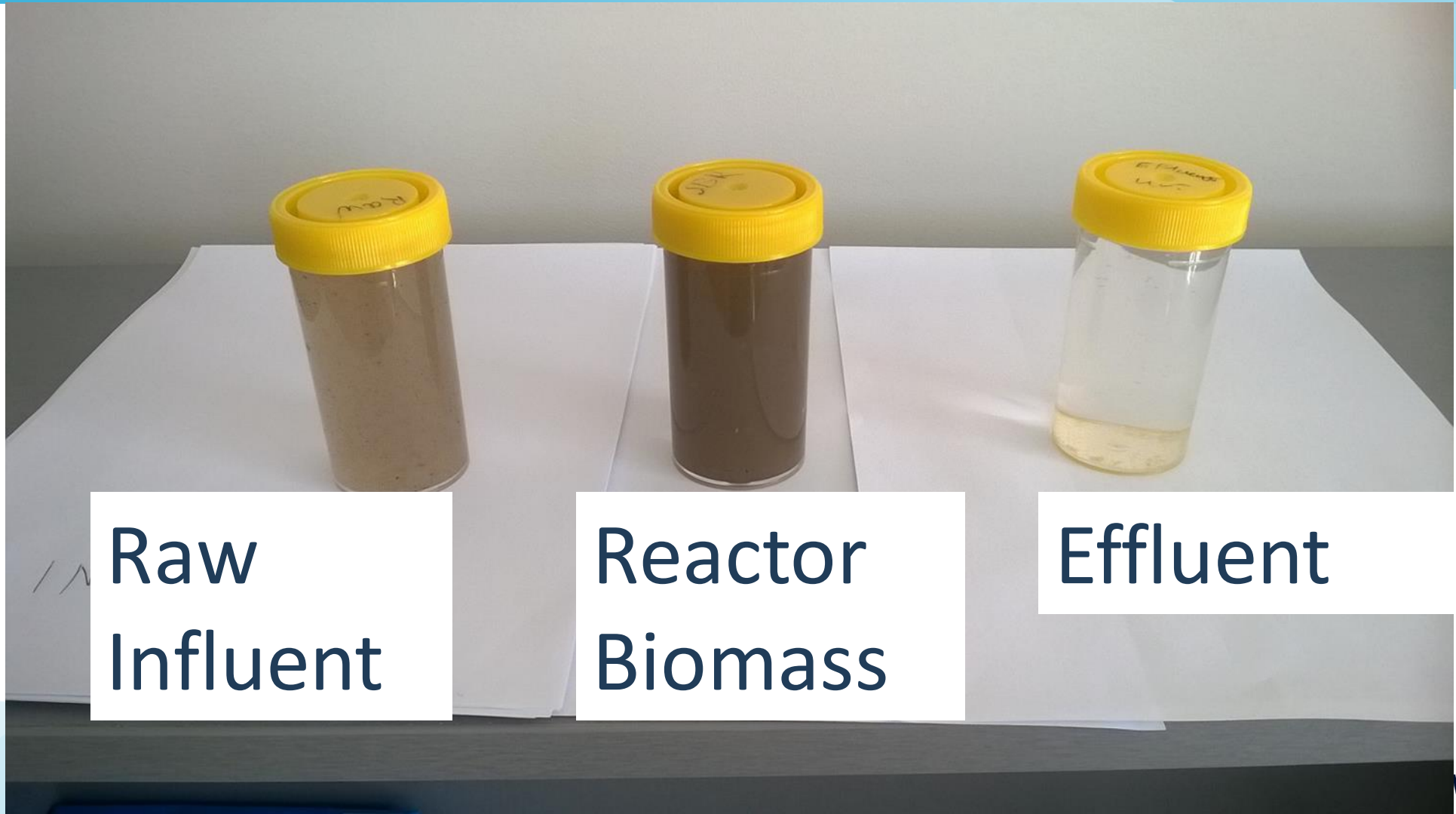
Let's talk Biosolids

Where do biosolids come from?



Wastewater Treatment Plant “Reactor” :
Good bugs are grown to convert ammonia to N gas

How are biosolids made

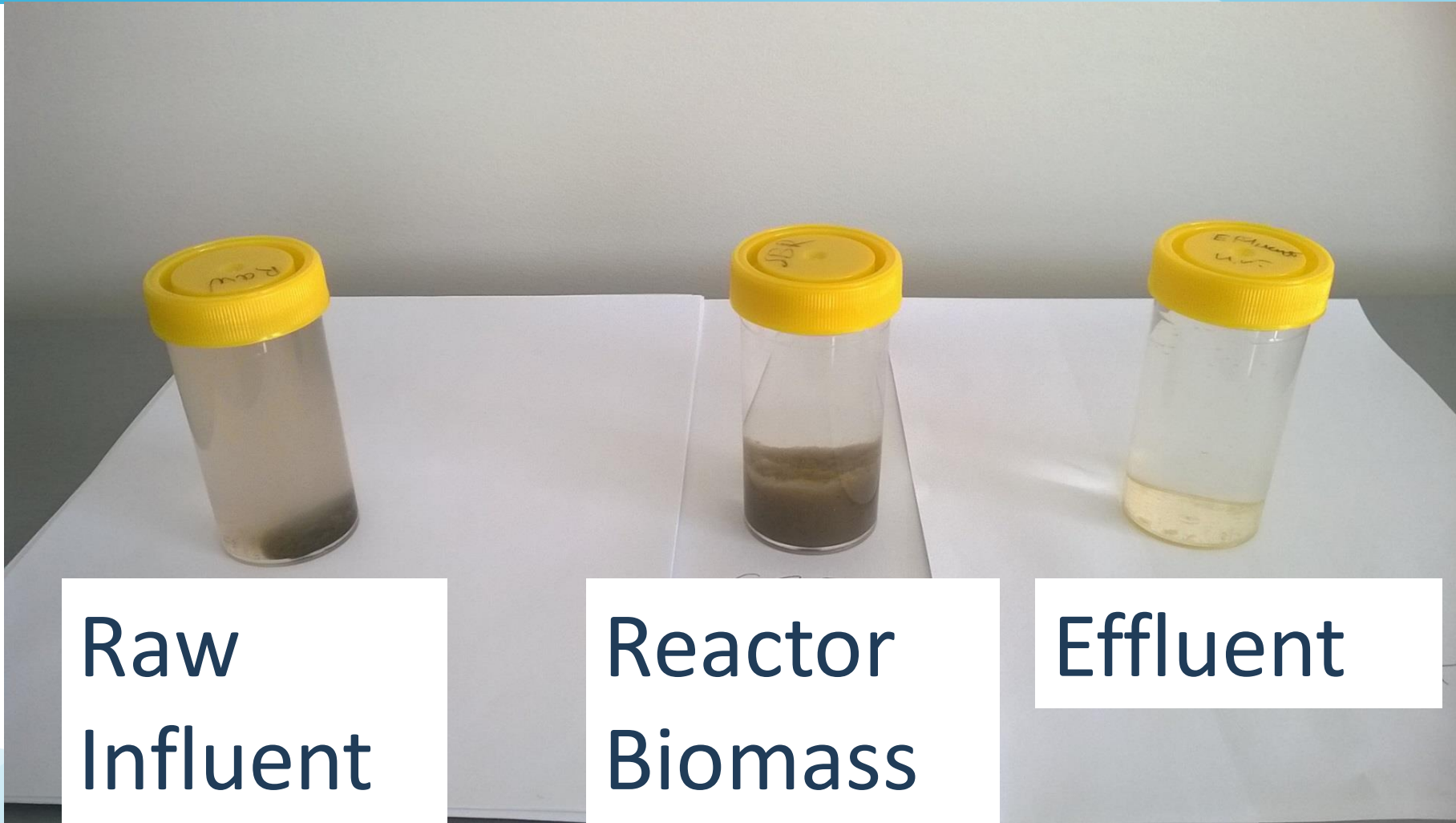


Raw
Influent

Reactor
Biomass

Effluent

How are biosolids made



Raw
Influent

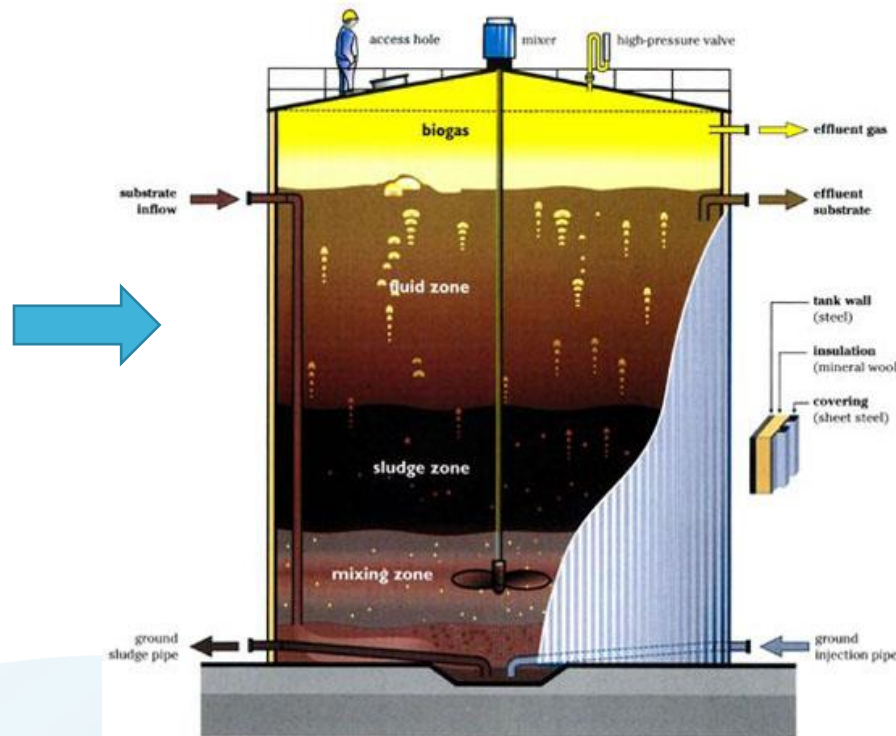
Reactor
Biomass

Effluent

How are biosolids made cont'd



Reactor
Biomass



20 days Digestion
@36°C



20% dry solids

“spadable”

So what is in Biosolids

Pathogens (can pasteurise)

Carbon, nitrogen, phosphorus and micronutrients

Heavy metals

Emerging contaminants are present at low levels, including PFAS

Biosolids Potting Mix Results Speak for Themselves



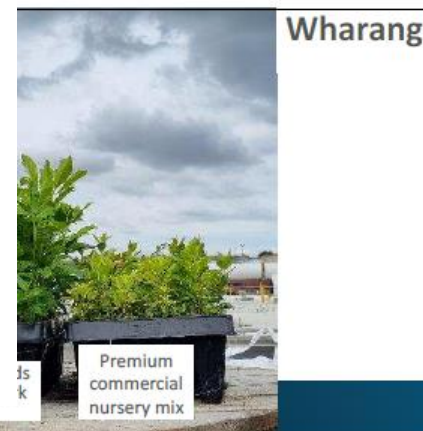
1



2



6



emerge soil products

CUSTOMER VALUE AND TRUST

Emerge Fertiliser (struvite) sales at \$750 per tonne :
to farm, turf, retail (Mitre10)



Sustainable
Business
Awards
Winner 2023



So where do Watercare's Biosolids Go Today...

Mangere	150,000Tp.a.	Industrial Monofill (Puketutu - Rehabilitation of a Quarry)
Rosedale	15,000Tp.a.	Commercial Landfill
Army Bay	5,000Tp.a.	Vermicomposting (Beneficial Reuse as Fertiliser)
Other	5,000Tp.a.	Commercial Landfill

Some landfills currently refuse to receive biosolids due to odour
(Redvale, Whitford, Wellington)

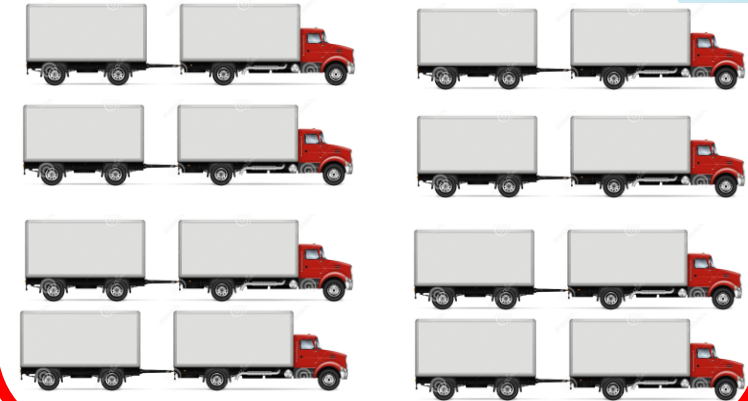
2030s – 30 TRUCKS / DAY

FORECAST SYSTEM CAPACITY IF WATERCARE DOES NOTHING

Commercial Market Capacity (Landfills, Vermicomposting)



Discharge to Manukau Harbour



3 VIABLE OPTIONS FOR BIOSOLIDS AT OUR SCAL

(making bricks or jet fuel are demonstrated in labs, but not at our scale)



Land Application

Int'l Practice (Actuals)

NZ	17%
Australia	85%
UK	90%
USA	50%


Landfill

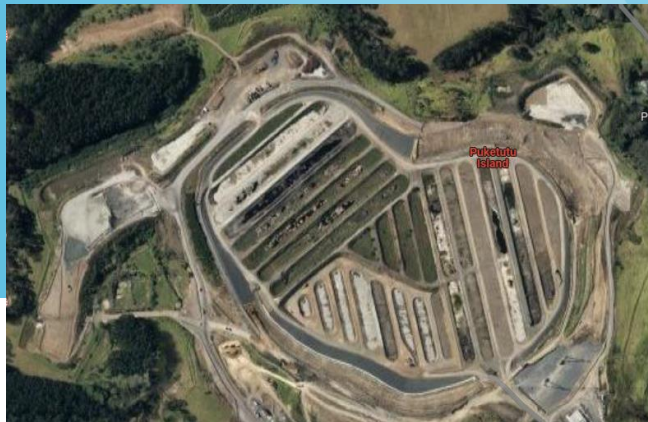
Int'l Practice (Rob's estimate)

NZ	70%
Australia	5%
UK	0%
USA	20%

Dryer-Incinerator

Int'l Practice (Rob's estimate)

NZ	<1%
Australia	3%
UK	10%
USA	30% Watercare 



Land Application

Not complete solution...lack of seasonal and market resilience

Best carbon / soil circular economy outcomes

Only if a) workable regulation, and; b) a willing market

Complex system, low maturity in NZ

Guidelines must be completed and endorsed by MfE.

Landfill

Zero waste goal by 2040... so no to landfill?

Investigate Banning Organic waste to landfill by 2030... so no to landfill?

Robust reliable solution

Dryer-Incinerator

Inconclusive direction regarding Waste to Energy... Biosolids Incineration is **not** WTE

Most common solution sought internationally for biosolids

50yrs technology, however new to NZ

SOLUTION BY 2035... WHAT WE KNOW

- **Decide solution in 2yrs**, consenting 3yrs, commissioning 5yrs
- 15 yrs consent process for disposal facility

(eg : Huia Water Treatment Plant, Dome Valley, SIRRL)

- Decide servicing solution **AND** location
- **Goal : no organics to landfill by 2030**

(MfE action 15.4 “Chapter 15 – Waste”, Aotearoa’s first emissions reduction plan)

- **Zero “waste” by 2040**

(Auckland Council WMMP)

- A national awkwardness regarding **incineration** –

(Especially for systems that are NOT waste to energy)

- No workable pathway for **land application** at scale

(Draft Guidelines need MfE signoff)

DECISION 2026 IN COMPLEX, CHANGING TIMES

- **Decide solution in 2yrs**, consenting 3yrs, commissioning 5yrs

Complex changing times :

POLICY AND LEGISLATION

- RMA Reform, Waste Act Reform, Fast Track
- ERP#1 (ban organics to landfill), ERP#2?

NEW TECHNOLOGY

- Gasification? Incineration?
- What if Project Kea is approved, if not?

NEW INFORMATION

- New emerging contaminants : land application, landfill, incineration
- New carbon accounting / ETS / carbon sequestration

WHAT IS NEEDED FOR A WICKED PROBLEM IN CHANGING TIMES

- **Need certainty for “Decision 2026”**
- **Clarity on ban of organics to landfill**
- **Future legislation and policy – holistic and complementary**
- **Pathway for land application guidelines**
- **Very difficult if there is a slow closing door on an option**
- **When an option is closed... we must acknowledge other options are indirectly being endorsed... this is very much EITHER/OR**