



Ron Slauson
2007

ENHANCED BIOSOLIDS PRODUCTION AT HONOLULU HAWAII SAND ISLAND FACILITY

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A Residuals Management Company





Honolulu Facility Design Criteria

- 10,000DTPY @ 4-6% Solids
- 25 Year design life (15+10)
- Product beneficial reuse
- Proven technology
- Minimal environmental impact
- BACT odor control
- Reliable and safe operations
- Cost effective design and O&M

Honolulu Project

Why an Egg Shaped Digester?

- Small footprint
- Eliminates routine cleaning
- Gas-tight vessel – Low odor
- Ability to process high solids
- Maintain full design HRT – No added volume needed

WEF MOP 16 recommends +25% additional volume for conventional digester



ESD Footprint



Sand Island WWTP proximity to Honolulu Harbor



Sand Island WWTP – Sand Island State Recreation Area.

ESD

Key Operating Indicators

Anaerobic digestion

Organic loading

Volatile solids destruction

Acid/Alkalinity ratios

Temperature

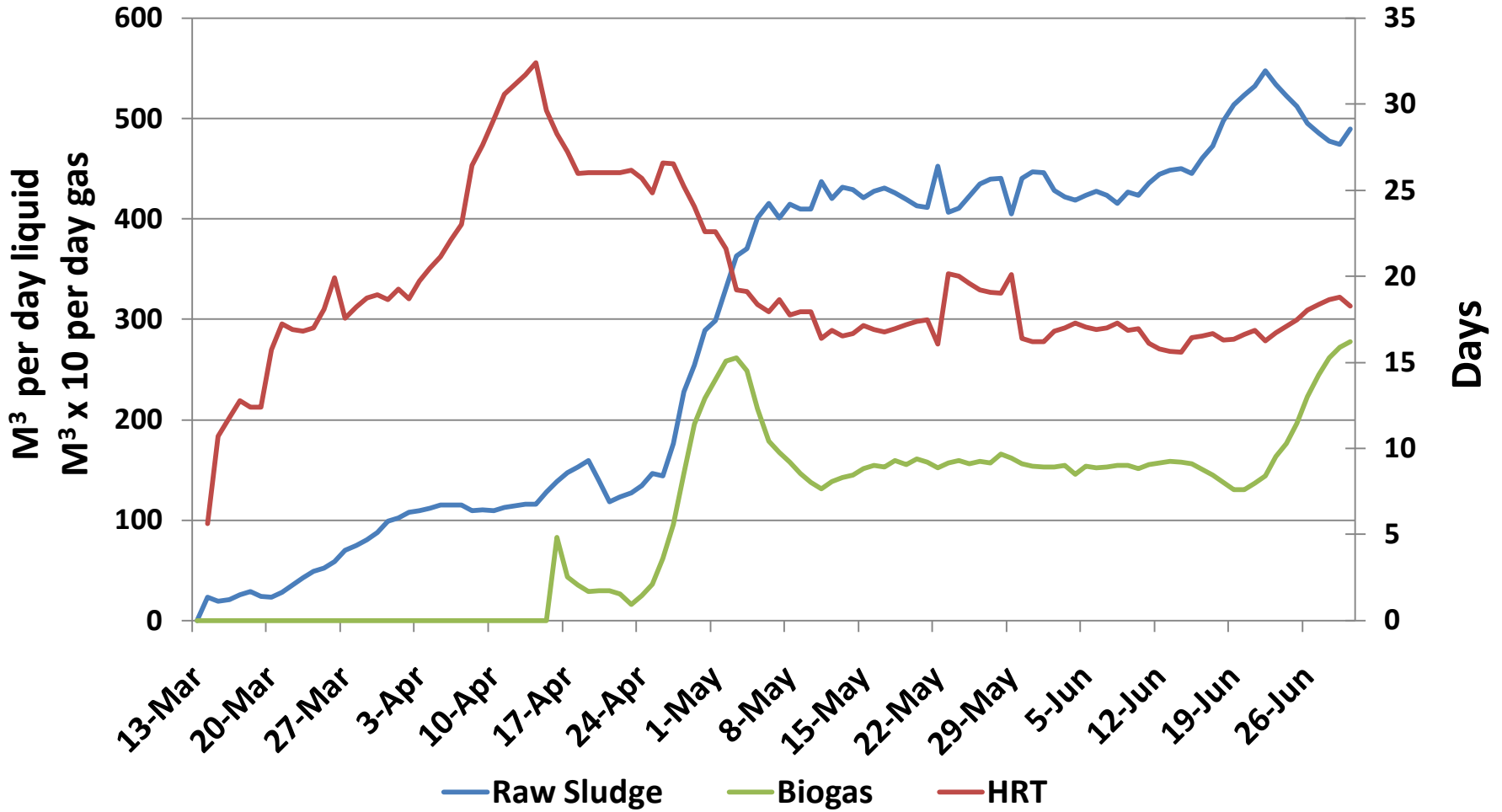
Retention time

Gas production

ESD Start-Up

- Micro-Digester start-up technique
- Kailua seed sludge
- Sand Island DAF primary
- 18-25 day HRT

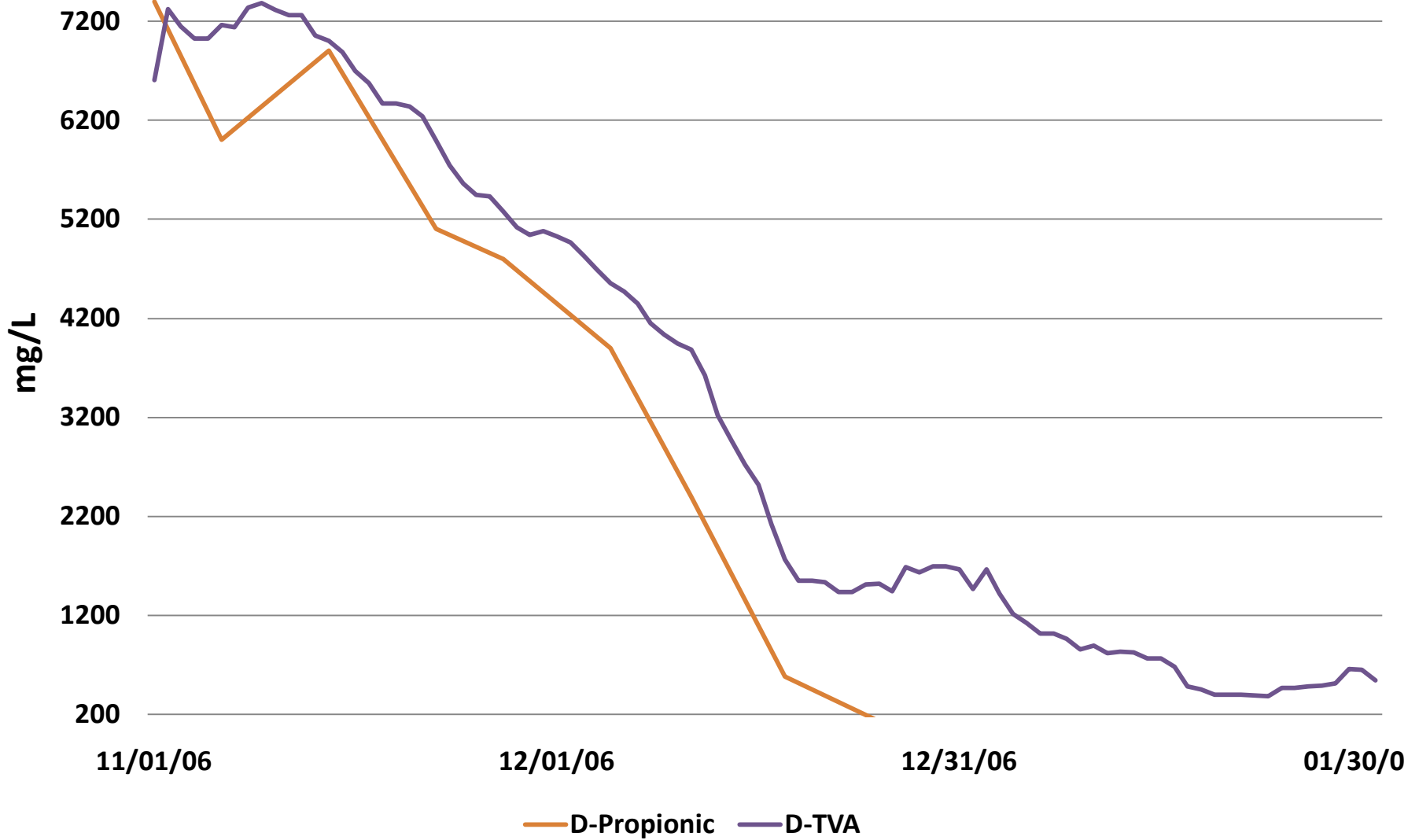
Honolulu ESD Start-up 2006



Honolulu ESD-Digested Sludge 2006



Honolulu ESD - VA Distribution 2006



LIGHT METAL POTASSIUM

Mg/L

JAN—APR YEAR SLUDGE		STIMULATORY 200--400		MODERATE INHIBITORY 2500--4500
2007 RAW	123			
2007 DIG	147			
2009 RAW	135			
2009 DIG		299		

LIGHT METAL CALCIUM

Mg/L

JAN—APR YEAR SLUDGE		STIMULATORY 100--200		MODERATE INHIBITORY 2500--4500
2007 RAW			846	
2007 DIG			1492	
2009 RAW			860	
2009 DIG			804	

LIGHT METAL SODIUM

Mg/L

JAN—APR YEAR SLUDGE		STIMULATORY 100--200		MODERATE INHIBITORY 3500--5500
2007 RAW			2013	
2007 DIG			2087	
2009 RAW			1760	
2009 DIG			1733	



EGG SHAPED DIGESTER

2009 PERFORMANCE

LOADINGS

BIOSOLIDS PROCESSED	107,500 gpd
TOTAL SOLIDS	6.38 %
VOLATILE SOLIDS	81.3 %
HYDRAULIC RETENTION TIME	23 Days
VOLATILE SOLIDS REMOVAL	62.6 %



**EGG SHAPED DIGESTER
2009 PERFORMANCE
CHEMISTRY**

Ph	6.9
ALKALINITY	5,281 mg/L
VOLATILE ACIDS	438 mg/L
VOLATILE ACIDS / ALKALINITY RATIO	0.08



EGG SHAPED DIGESTER

2009 PERFORMANCE

GAS

TOTAL GAS PRODUCTION	513,000 ft³/day
H₂S Concentration	1,560 ppm
Methane Concentration	61.4 %
UNIT GAS PRODUCTION	20 ft³/# VS Destroyed



ALA WAI GOLF COURSE CONSTRUCTION



TURF BUIDING @ ERNIE ELS HOAKALEI GOLF COURSE



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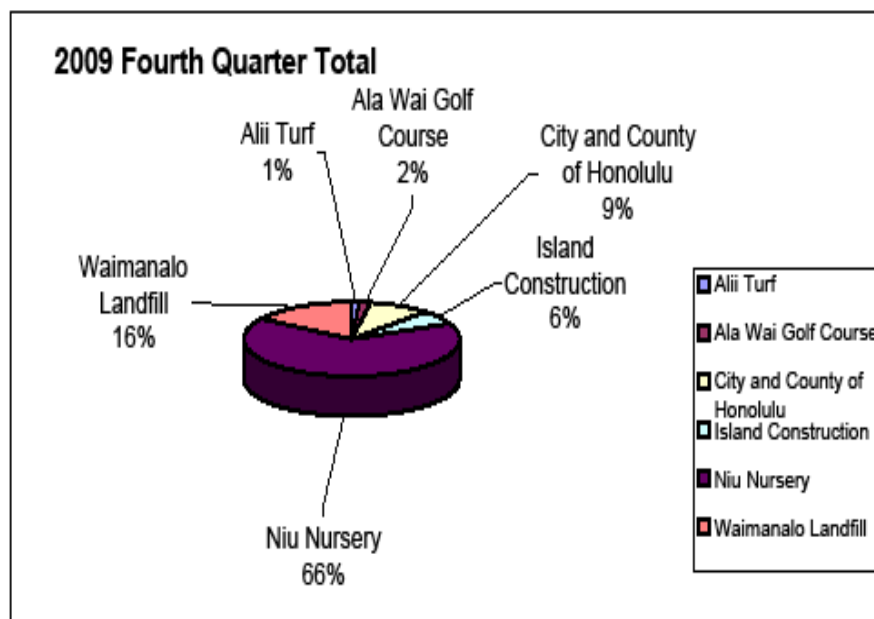


ALA WAI GOLF COURSE CONSTRUCTION

Sand Island Project # 0075-01 4th Quarter Report

Month	Loads	Tons
October	22	294.85
November	23	279.79
December	23	317.58
Total	68	892.22

Tonnage by Customer	October	November	December	Total
Alii Turf	0	9.27	0	9.27
Ala Wai Golf Course	16.31	0	0	16.31
City and County of Honolulu	0	46.86	33.81	80.67
Island Construction	11.38	32.3	10.14	53.82
Niu Nursery	218.63	137.2	235.9	591.73
Waimanalo Landfill	48.53	54.16	37.73	140.42
	294.85	279.79	317.58	892.22



SUMMARY & CONCLUSIONS

- 10,000 DRY TONS OF BIOSOLIDS PROCESSED / YEAR
- EGG SHAPED DIGESTER IS NEAR FULL CAPACITY
- 63 % VOLATILE SOLIDS REDUCTION BY
EGG SHAPED DIGESTER
- CLASS A BIOSOLIDS MARKETING PROGRAM TO
PRIVATE MARKET HIGHLY SUCCESSFUL
- SYNAGRO GRANULITE PRODUCT DEMAND GREATER
THAN CURRENT SUPPLY
- GRAMULITE PRODUCTION FACILITY HAS
SIGNIFICANT RESERVE CAPACITY



QUESTIONS ?