

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



Beneficial Utilization of Waste Processing Facility Wastewater

EWS LLC

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OPPORTUNITIES

BENEFITS FROM WASTE

AEROBIC PROCESSING

CONTROL and BIOLOGICAL MANIPULATION

**TRANSFORMER
PROCESSING
ABOP
ACCELERATED
BIOLOGICAL
ORGANICS
PROCESSING**

Final

BENEFITS TO BE EXPLORED

**Beneficial Aqueous Mixtures
Surface and Ground Water
Discharge
Organics Processing
Air Quality Issues**











THIS IS YOUR SHOE



THIS IS YOUR SHOE ON COMPOST

















02.21.20

WARNING

CHARTS AND GRAPHS AHEAD

Test Name	Analyte	Matrix	Units	8/2009
Pesticides	4,4 -DDT	Water	µg/L	< 0.020
Pesticides	Aldrin	Water	µg/L	< 0.010
Pesticides	alpha-BHC	Water	µg/L	< 0.010
Pesticides	beta-BHC	Water	µg/L	< 0.010
Pesticides	Chlordane, Technical	Water	µg/L	< 0.50
Pesticides	delta-BHC	Water	µg/L	< 0.010
Pesticides	Dieldrin	Water	µg/L	< 0.020
Pesticides	Endosulfan I	Water	µg/L	< 0.020
Pesticides	Endosulfan sulfate	Water	µg/L	< 0.020
Pesticides	Endrin	Water	µg/L	< 0.020
Pesticides	Endrin aldehyde	Water	µg/L	< 0.020
Pesticides	gamma-BHC (Lindane)	Water	µg/L	< 0.010
Pesticides	Heptachlor	Water	µg/L	< 0.010
Pesticides	Heptachlor epoxide	Water	µg/L	< 0.010

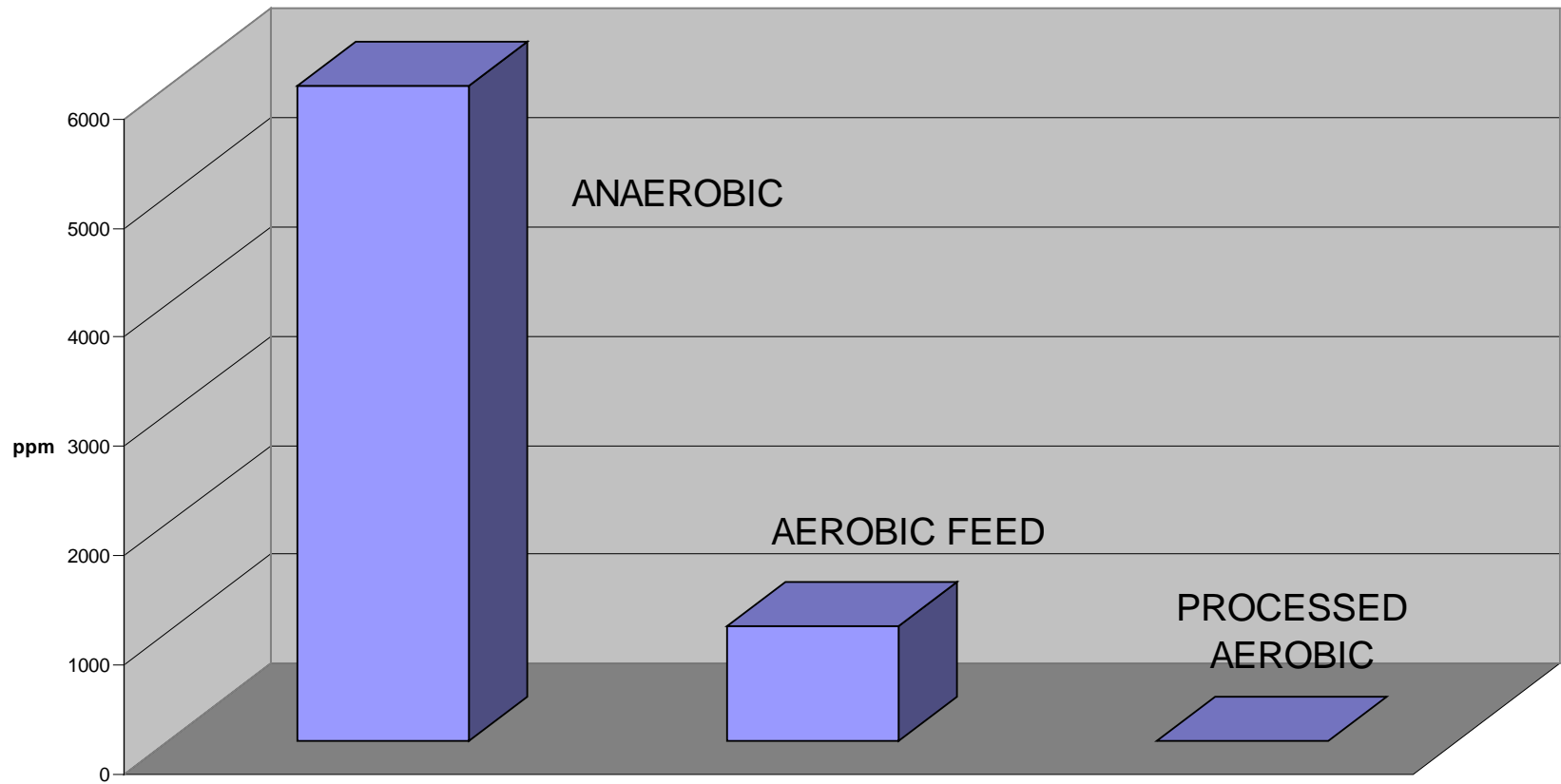
Test Name	Analyte	Matrix	Units	8/2009
Semi-Volatile Organic Compounds	1,2,4-Trichlorobenzene	Water	µg/L	< 5.0
Semi-Volatile Organic Compounds	1,2-Dichlorobenzene	Water	µg/L	< 1.0
Semi-Volatile Organic Compounds	1,2-Diphenylhydrazine	Water	µg/L	< 5.0
Semi-Volatile Organic Compounds	1,3-Dichlorobenzene	Water	µg/L	< 1.0
Semi-Volatile Organic Compounds	1,4-Dichlorobenzene	Water	µg/L	< 1.0
Semi-Volatile Organic Compounds	2,4,6-Trichlorophenol	Water	µg/L	< 4.0
Semi-Volatile Organic Compounds	2,4-Dichlorophenol	Water	µg/L	< 10
Semi-Volatile Organic Compounds	2,4-Dimethylphenol	Water	µg/L	< 5.0
Semi-Volatile Organic Compounds	2,4-Dinitrophenol	Water	µg/L	< 25
Semi-Volatile Organic Compounds	2,4-Dinitrotoluene	Water	µg/L	< 5.0
Semi-Volatile Organic Compounds	2,6-Dinitrotoluene	Water	µg/L	< 5.0
Semi-Volatile Organic Compounds	2-Chloronaphthalene	Water	µg/L	< 5.0
Semi-Volatile Organic Compounds	2-Chlorophenol	Water	µg/L	< 10
Semi-Volatile Organic Compounds	2-Nitrophenol	Water	µg/L	< 5.0

Test Name	Analyte	Matrix	Units	8/2009
Volatile Organic Compounds	cis-1,2-Dichloroethene	Water	µg/L	< 1.0
Volatile Organic Compounds	cis-1,3-Dichloropropene	Water	µg/L	< 1.0
Volatile Organic Compounds	Dibromochloromethane	Water	µg/L	< 5.0
Volatile Organic Compounds	Ethylbenzene	Water	µg/L	< 1.0
Volatile Organic Compounds	Methylene chloride	Water	µg/L	< 5.0
Volatile Organic Compounds	Tetrachloroethene	Water	µg/L	< 1.0
Volatile Organic Compounds	Toluene	Water	µg/L	< 1.0
Volatile Organic Compounds	trans-1,2-Dichloroethene	Water	µg/L	< 1.0
Volatile Organic Compounds	trans-1,3-Dichloropropene	Water	µg/L	< 1.0
Volatile Organic Compounds	Trichloroethene	Water	µg/L	< 1.0
Volatile Organic Compounds	Vinyl chloride	Water	µg/L	< 1.0

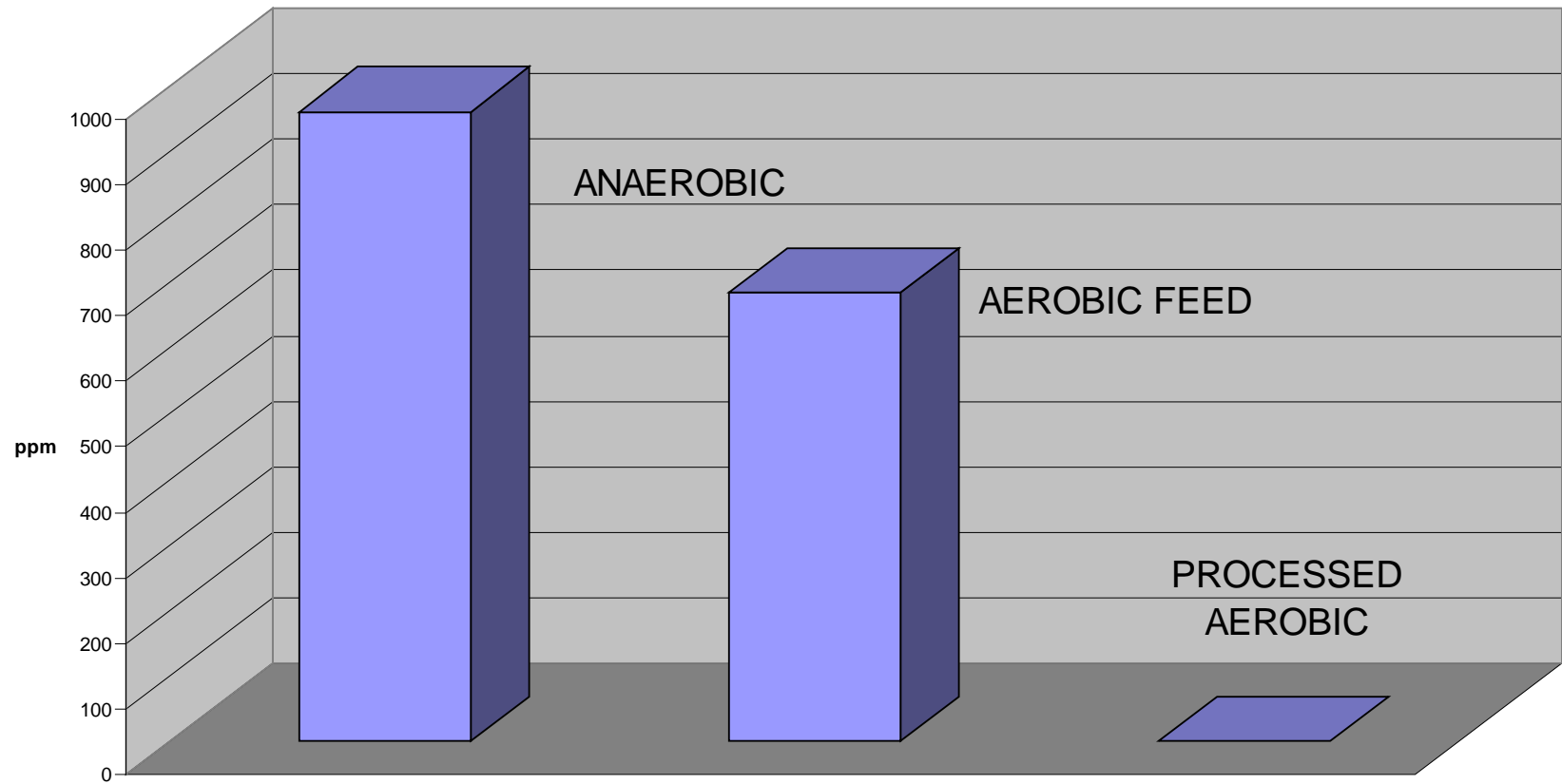
Test Name	Analyte	Units	10/2009
Metals by ICP-MS	Boron	mg/L	4.2
Metals by ICP-MS	Chromium	mg/L	0.052
Metals by ICP-MS	Copper	mg/L	0.0047
Metals by ICP-MS	Nickel	mg/L	0.047
Metals by ICP-MS	Vanadium	mg/L	0.041
Low Level Analyses	Mercury	ng/L	2.24

Parameter		ANAEROBIC Average Leachate	Feed Aerobic Leachate	Treated Aerobic Leachate
Copper	ppb		66	4.3
Manganese	ppb		2100	98
Vanadium	ppb		71	46
Zinc	ppb		160	ND
MEK	ppb		750	ND
Acetone	ppb		490	ND
Phenol	ppb		150	ND
BOD5	ppm	6000	1050	6
Ammonia	ppm	960	685	0.25
pH		5.8	8.2	8.5

BOD



AMMONIA



















HAY
NITROGEN USE AT
100# PER ACRE
GROWING SEASON
APRIL-OCTOBER





SWITCHGRASS

NITROGEN USE AT
5# to 50# PER ACRE
GROWING SEASON
APRIL-OCTOBER



HYBRID POPLARS

NITROGEN USE AT
90 TO 310# PER ACRE
GROWING SEASON
APRIL-OCTOBER

Manipulation of the identity of the liquid and solid!

Salt

Nitrogen

Pathogens

Toxins

Biological activity

WHAT WE KNOW

MORE

QUESTIONS

THAN ANSWERS

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