“IT’S DÉJÀ VU ALL OVER AGAIN”

-YOGI BERRA

2018 MWEA BIOSOLIDS CONFERENCE
BATTLE CREEK, MI
TOPICS TO BE COVERED

- First Recorded Beneficial Reuse
- “Sludge” Discovery
- Sludge Development and Treatment
- Treatment Drivers
- Biosolids for the Future
FIRST
BENEFICIAL
REUSE
DEUTERONOMY 23:12-13

"12 Set up a place outside the camp to be used as a toilet area. 13 And make sure that you have a small shovel in your equipment. When you go out to the toilet area, use the shovel to dig a hole. Then, after you relieve yourself, bury the waste in the hole."
EARLY RECOGNITION

Word Origin and History for sludge

*n.*
“mud, mire, ooze”, 1640s, of uncertain origin, possibly a variant of Middle English *slutch* “mud, mire,” or a variant of *slush* (n.).
RECOGNITION AND DEVELOPMENT
BEGINNINGS OF TREATMENT

- In the late 1800s and early 1900s the aim of treatment was to provide clean, high-quality water, not a high-quality sludge.

- What a difference a century makes; now we strive to produce both!
TREATMENT DRIVERS

- Regulations
- Funding Availability
- Beer? Driver of Innovation?
REGULATIONS
REGULATORY CHANGES DROVE THE GROWTH OF BIOSOLIDS VOLUME

Image from ACS Publications Environmental Science & Technology https://pubs.acs.org/doi/10.1021/acs.est.5b01931
SOLIDS HANDLING
A TO Z

- Air Drying Beds
- Belt Presses & Centrifuges
- Coil Filters
- Dust Control on Backroads
- Incinerators
- Plate and Frame
- Thickening Equipment
- Vacuum Filters
- Vacuum Assisted Drying Beds
- Zimpro
TRENDS IN BIOSOLIDS REUSE

1988
Disposal by land application and ocean dumping

Ocean dumping banned 1988

1993
Part 503, 1993 encourages land application

~2000
Health concerns, inspector general report, NRC study

2015 forward
Social, economic, and environmental sustainability

2000-2015
Social, economic, and environmental sustainability
SOLIDS REDUCTION AND BIOSOLIDS REUSE

Plant Flow: 642 MGD
Dewatered Biosolids: 1776 DT/Day
Generated: 348 DT/Day
Multiple Outlets
FUNDING AVAILABILITY
FUNDING TRENDS

- 1800s Private Enterprise
- 1902 Reclamation Act
- 1930-1940 New Deal (WPA)
- 1948 Federal Water Pollution Control Act
- 1966 clean water restoration act
- 1972 Federal water pollution control act amendments (CWA)
- GRAND LEDGE
- NIILES
- SALINE
- ANN ARBOR
- GRAND RAPIDS
- BENTON HARBOR
- SCCMUA
- LANSING
- GENESEE CO. - DC
- OAKLAND CO. - WRC
- JACKSON
- COLDWATER
- MARQUETTE
- PETOSKEY
- ALPENA
- DELHI TWP.
- SAULT ST MARIE
- MIDLAND
- GRANDVILLE
- WARREN
- TRAVERSE CITY
- DETROIT (GLWA)
- YUCCA
- MANISTEE
- BUCHANAN
- DOWAGIAC
- PLAINWELL
- GOGEBIC-IRON
- BAY COUNTY
- BATTLE CREEK
- KALAMAZOO
- HOLLAND
- AND MORE!
TAKING ADVANTAGE OF UNIQUE FUNDING
BEER

WHO KNEW BEER COULD DRIVE INNOVATION?
IF YOU DON’T KNOW WHERE YOU ARE GOING, YOU MIGHT WIND UP SOMEPLACE ELSE.

YOGI

DUPAGE COUNTY, ILLINOIS - 1991
GRAND RAPIDS WRRF

WATER RESOURCE UTILITY OF THE FUTURE
THE TRUE VALUE OF BIOSOLIDS REUSE IS YET TO BE REALIZED

Cartoon by David Simonds
First NIMBY

(Not In My Backyard)
Deuteronomy 23:12-13
"12 Set up a place outside the camp to be used as a toilet area. 13 And make sure that you have a small shovel in your equipment. When you go out to the toilet area, use the shovel to dig a hole. Then, after you relieve yourself, bury the waste in the hole."
WHAT IS THE FUTURE FOR YOUR BIOSOLIDS?
THANK YOU