

# Can Biosolids Save the World?

Presentation to the  
Mid-Atlantic Biosolids Association

Bill Toffey

November 10, 2009



# Captain Sewer



# Captain Sewer: A Wastewater Hero

- At one time part of a PWD public outreach
- Now retired from public life
- Originally broad-shouldered, more recently broad-waisted
- Now presented at retirement parties
- What is the role of “super-heroes” in wastewater?

# Heroes and Idols

- Idol: an object of uncritical worship, unthinking admiration
- Heroes: three attributes:
  - extraordinary achievement
  - bravery or courage
  - character or greatness of soul

# The Counterpoint: Villains

- a wicked or evil person; someone who does evil deliberately
- the principal bad character in a film or work of fiction

# Biosolids Professionals: Hero or Villain?

- Jon Franklin, “When Biosolids Hits the Fan” (1998):  
“Science... is but another form of authority bent on crushing the fragile human self, and its inherent forms of spiritual knowledge. One result is a deep distrust of technologists, like yourself. And what worth is your data, if people don't trust you, if the press is on the prowl for a scapegoat, if the politicians point the bone at you?”

# Hero as Myth and Story

- What are the evils in the world today?
  - What is the cultural conversation around evil?
  - Who are the heroes?
  - Who are the villains?
- Movies as myth and story
- Hypothesis: Our story about biosolids can respond to the cultural need for heroes rather than villains?

# Some of the “Evils”

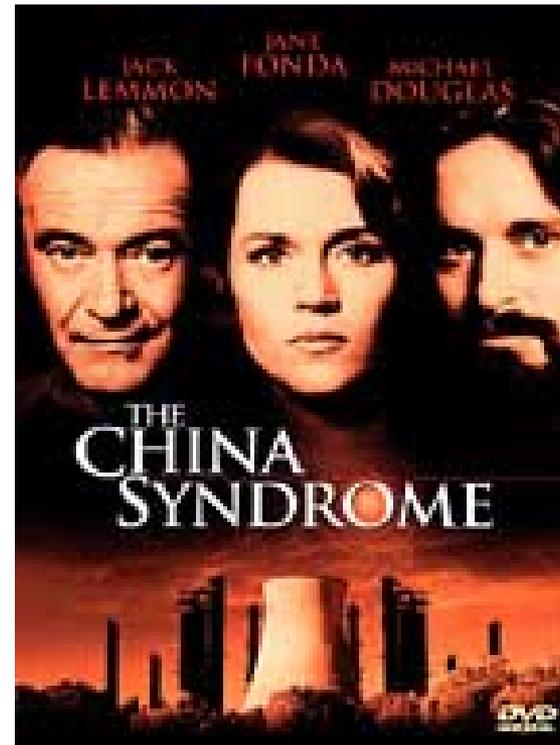
- Greenhouse gases are altering global climate
- International capitalism breeds inequality and suffering
- Pandemics are growing beyond reach of science
- Industrial toxics are killers of humanity and nature
- Nation-states are destroying personal freedoms
- Science and technology is a threat to the faithful

# Environmental Movies

- Corporate greed and indifferent government fall meet their match when an unlikely hero emerges
  - *China Syndrome* (1979)
  - *Silkwood* (1983)
  - *A Civil Action* (1999)
  - *Erin Brockovich* (2000)

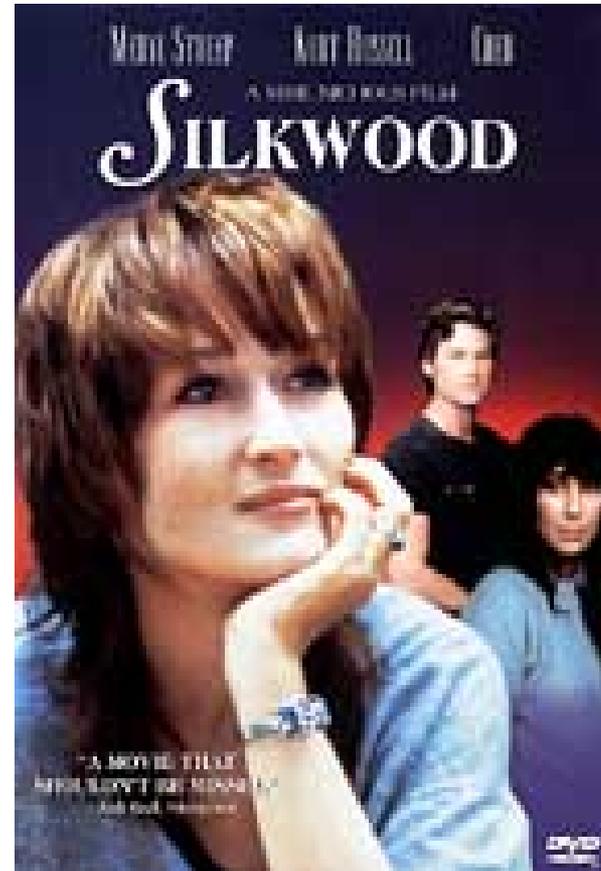
# *China Syndrome*

- *China Syndrome* (1979) a nuclear plant employee stumbles into a conspiracy to cover-up the plant's faulty safety mechanisms



# *Silkwood*

- *Silkwood* (1983)  
radiation-contaminated  
would-be whistleblower  
in Oklahoma strangely  
disappears before she  
is able to meet with a  
New York Times  
reporter



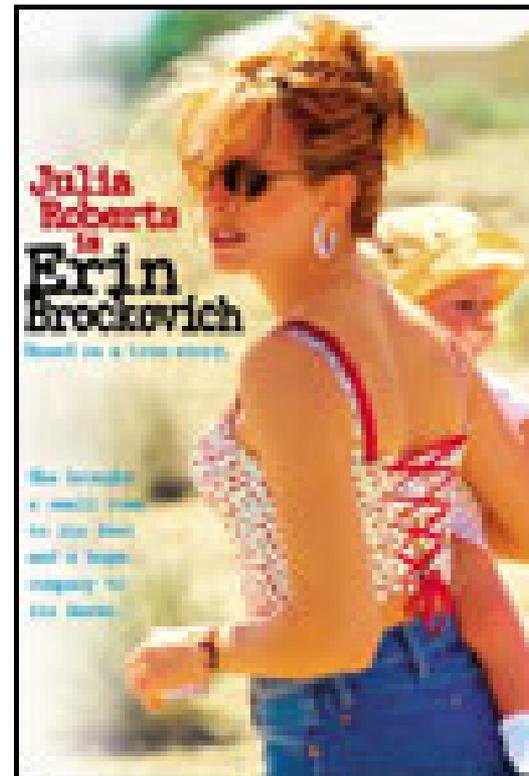
# *A Civil Action*

- *A Civil Action* (1999)  
a sleazy personal-injury lawyer litigates on behalf of small-town residents whose children have died or mutated as a result of chemical dumping and he is transformed into a soulful justice hunter



# *Erin Brockovich*

- *Erin Brockovich*  
(2000) Julia Roberts' titular character delivers justice to Californians devastated by a Pacific Gas and Electric plant

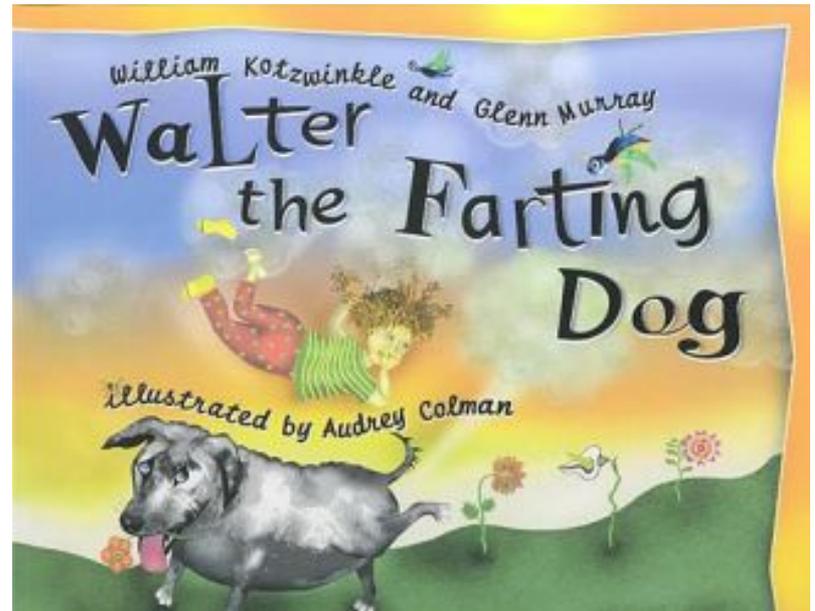


# Today's Movies and Our Response

- Movies for upcoming season capture today's angst
- Look to the cultural meaning of today's movies for relevant messages
- Biosolids: A plausible plot line as a villainous tool (n.b., recent request of Michael Moore)
- We need to cast biosolids in a positive role

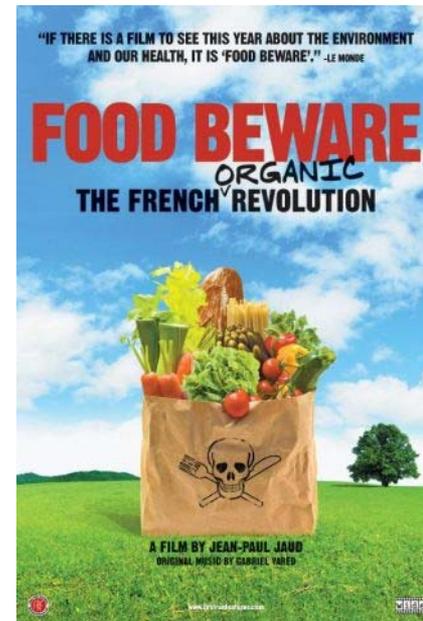
# Walter the Farting Dog

- **PLOT:** While his brothers play music, Frankie and the gaseous hound get involved in a plot that involves liberating a koi fish and thwarting jewel thieves
- **NO KIDDING:** One to miss!
- Bathroom humor is never out of season



# Food Beware

- Plot: Revealed in these moving and often surprising conversations are the abuses of the food industry, the competing interests of agribusiness and public health, the challenges and rewards of safe food production, and the practical, sustainable solutions that we can all take part in.

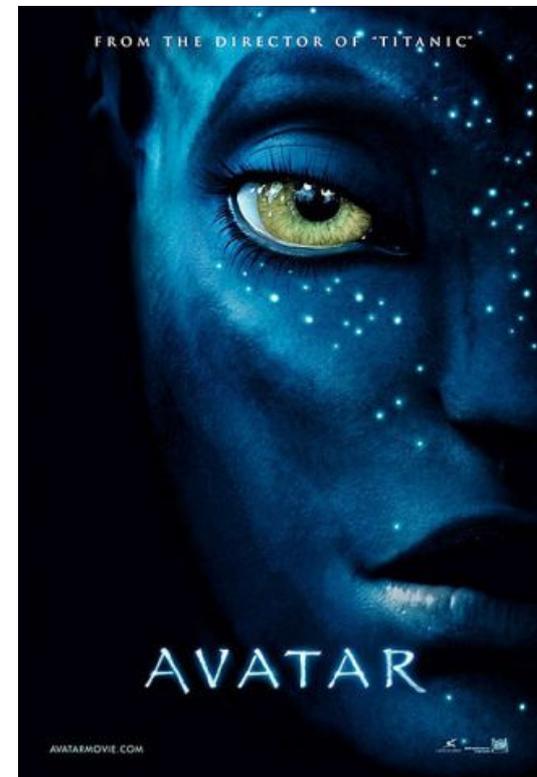


# Keeping Food Production Safe

- Sludge processes improved to reduce pathogen exposure
- Provide new indicators of effective pathogen removal
- Develop technologies to reduce persistent pollutants
- Build soil, particularly with compost, for enhanced fertility of soil
- Design process to capture and reuse phosphorus
- Design processes to reduce environmental releases of mineralized nitrogen

# Avatar

- Plot: an ex-Marine finds himself thrust into hostilities on an alien planet filled with exotic life forms; he is a human mind in an alien body, finding himself torn between two worlds, in a desperate fight for his own survival and that of the indigenous people.



# Acknowledging the Community

- Participate in NBP EMS Program, reflecting Community Outreach and goals
- Build support for biosolids reuse and recovery, and thereby enhance social aspect of Triple Bottom Line
- Implement transparency in programs, as in biosolids quality information and in operations.

# The Road

- Plot: a post-apocalyptic dramatic thriller about a father and his son walking alone through burned America. They have nothing; just a pistol to defend themselves against the lawless bands that stalk the road, the clothes they are wearing, a cart of scavenged food--and each other.



# Responding to Climate Change

- Maximize production and use of biogas for energy for carbon offset
- Sequester biosolids-borne carbon in soil reclamation sites
- Use biosolids to replace petroleum-based fertilizers
- Use biosolids for nutrient source in growing biomass crops

# Mall Cop

- Plot: a single, suburban dad, tries to make ends meet as a security officer at a New Jersey mall, a job he takes very seriously, though no one else does. When Santa's helpers stage a coup and take hostages he becomes a real cop to save the day.

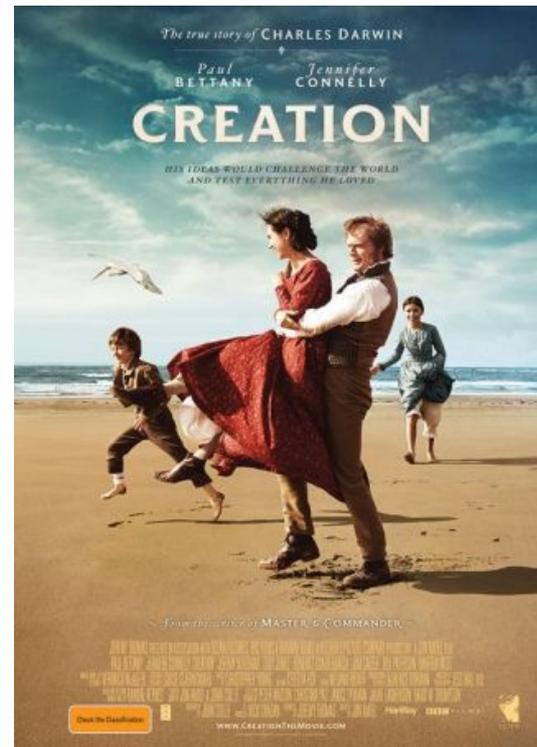


# Acting with Integrity and Humility

- Benchmarked performance and continual improvement
- Transparency in operations
- Continual engagement in public outreach
- Nutrient and organic matter recovery
- Maximize source control through pretreatment program

# Creation

- Plot: the powerful and true-life tale of Charles Darwin who finds himself caught in a battle between faith and reason, love and truth. A passionate marriage is torn apart by the most provocative idea in history – evolution, and a theory is saved from extinction by the logic of a child.



# Being “Out-of-the-Box”

- Seek new approaches to improve biodegradability in digesters
- Develop robust measurement protocols for pathogens
- Re-examine processes for reduced sludge production
- Examine co-digestion for enhanced biogas production

# Biosolids YouTube Storytelling: Our Side of the Story

- San Francisco Public Utilities Commission
- *Biosolids an Amazing Renewable Resource*
  - [http://www.youtube.com/watch?v=QpiZReZG4\\_A&feature=related](http://www.youtube.com/watch?v=QpiZReZG4_A&feature=related)



# Biosolids YouTube Storytelling: The Other Side of the Story

- *Sewage Sludge is Poison*
- <http://www.youtube.com/watch?v=Y5LmYhOmrjc&feature=related>



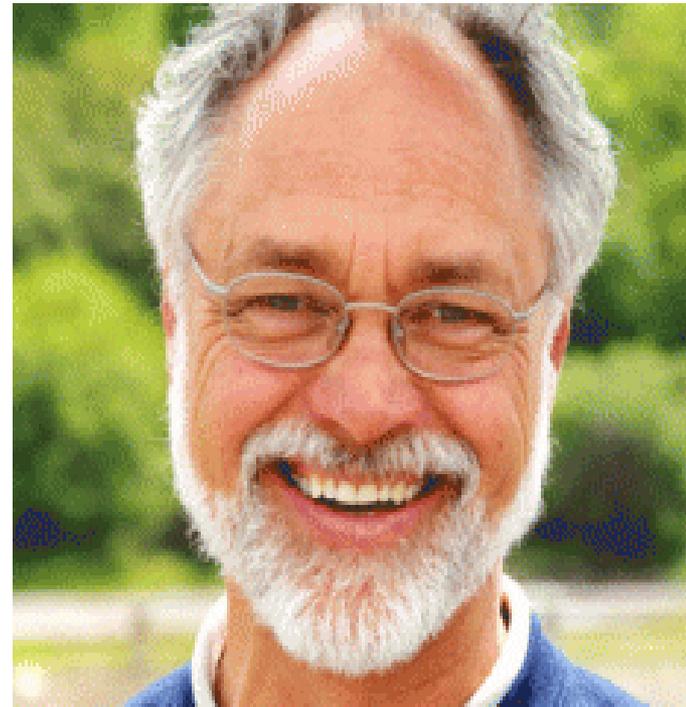
# Biosolids Heroes and Their Stories

- **Tyler Prize 2007 for Environmental Achievement:**  
Gatze Lettinga, a Dutch scientist known for his invention of anaerobic wastewater treatment and his determination to make it universally available.
- **Vern Haverstick Groundwater Hero Award 2002:**  
Gayl Fowler, of Burgess VA, for groundwater protection internationally, but involved in biosolids applications
- **Outstanding Women in Business Awards 2006:**  
Shelagh Connelly, New Hampshire, Resource Management, Inc. career in residuals recycling has now spanned 18 years and she has emerged as a leader in the industry

# T. Allan Comp

- **The National River Heroes Award 2009**

- historian in the US Department of the Interior's Office of Surface Mining.
- AMD&ART restored (with biosolids) a landscape in Vintondale, PA, polluted by coal mining and AMD into an artful public park that functions as a passive water treatment system.



# Elements of Biosolids Hero

- Works to Enroll Community in the Quest
- Commits to Protecting People, Land and Climate
- Seeks New Solutions for Large Problems
- Demonstrates High Integrity and Right Acts
- Unstoppable in the Face of Challenges

# The Answer: YES!

Biosolids Can Save the World When We Are  
Ready to Act as Heroes !