



## Overview Agenda May 16

- Biosolids and Rules in Idaho
- U.S. EPA Region 8 Biosolids Coordinator Robert Brobst
- USDA-ARS Northwest Irrigation and Soils Research Laboratory Research Soil Scientist Jim Ippolito
  - The Basics of EPA Regulations
  - The Science of Land Application
  - Math for Compliance (Pathogens, VSR and Agronomic Application)

## Overview Agenda May 17

- Review scenarios
  - Application to Crop Land
  - Lagoons
  - Other disposal practices
- Q & A Session
- Audits and Inspections
- Biosolids and other Land Applied Sludge Wastes in Idaho

## What are Biosolids?

- Biosolids are the stabilized residuals that settle from the water during the treatment processes.
- When treated and processed, sewage sludge becomes biosolids

<http://www.snowwhiteservices.com>

## Wastewater Treatment

- The wastewater treatment process creates two products: a liquid stream and sludge
  - Sludge is the solid, semisolid or liquid untreated residue generated during wastewater treatment.

Dive in a wastewater treatment plant

[http://www.descocorp.com/gallery\\_2.htm](http://www.descocorp.com/gallery_2.htm)

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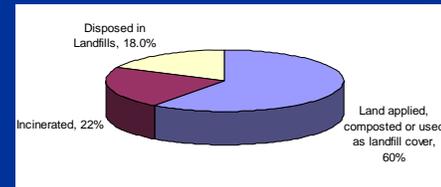
## Biosolids Treatment

- Biosolids treatment is designed to kill pathogens and stabilize organic matter. This is also treatment to reduce odors and vector attraction.
- Biosolids can be safely used to sustainably improve and maintain productive soils and stimulate plant growth.



## Biosolids Generation and Use

- EPA estimates that publicly owned wastewater treatment works in US generate > 7 million tons (dry weight) of sewage sludge annually.



## Biosolids Flowchart



## Composition of Biosolids

- Water
- Nitrogen
- Phosphorus
- Other nutrients and organic matter
- Trace amounts of metals and organic compounds



[http://www.cipotato.org/urbanharvest/photos/urbanwasteproducts\\_ghana.htm](http://www.cipotato.org/urbanharvest/photos/urbanwasteproducts_ghana.htm)

## Biosolids Benefits

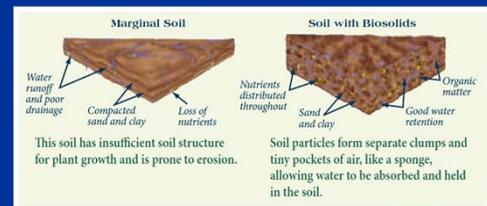
- EPA and state of Idaho considers biosolids a beneficial resource.
- Nutrients and organic matter in biosolids can be recycled as a fertilizer and used for soil augmentation.

Cross-section of poplar trees showing how sludge application increases tree growth. Both cross sections are 8 years old; the larger is approx. 8 inches in diameter.



(Photo courtesy of Mike VanHam, British Columbia, Canada)

## Biosolids Benefits



Taken from Biosolids Brochure at <http://www.kingcounty.gov/environment/wastewater/Biosolids/DocumentsLinks.aspx>

## Constituents of Concern

- Nutrients
- Pathogens
- Odors and bio-aerosols
- Pollutants
  - Trace elements
  - Organic and Inorganic Toxins



<http://www.water.siemens.com>

## Biosolids Regulated Community

- Biosolids are subject to federal, state, and local regulations
- Biosolids must be treated to meet standards for pathogens, vectors, and metals.
- This applies to anyone who:
  - Generates treated sewage sludge (biosolids)
  - Derives a material from treated sewage sludge (biosolids)
  - Applies biosolids to the land

## Biosolids Regulations

- Federal Regulations (40 CFR Part 503)
  - Anyone who the law applies to, has to follow it whether or not they have a permit
- State (IDAPA 58.01.16 “Wastewater Rules”)
  - 58.01.16.650 Sludge can be utilized as soil augmentation
  - Separate enforcement authority in Idaho



<http://lancaster.unl.edu/enviro/biosolids/overview.shtml>

## Biosolids Regulations

- Federal Regulations (40 CFR Part 503)
- State (IDAPA 58.01.16.650)
  - Be Aware, Familiar and Compliant with both



## 40 CFR Part 503

- Biosolids Treatment
  - Stabilization and Dewatering
- Pathogen Reduction
  - Class A
  - Class B
- VAR: Vector Attraction Reduction
- Pollution Limits and other requirements



<http://www.flickr.com/photos>

## Biosolids Land Application



- Beneficial use is for soil augmentation
- EPA, WERF, NACWA have demonstrated that the beneficial land application of biosolids poses a negligible risk to human health (National Academy of Sciences, 2002 Study)

## Biosolids Application Methods



## Biosolids Management Plan

- IDAPA 58.01.16.650 requires approved Plans
- Plans should accurately reflect activities
- Requires DEQ approval and includes:
  - Biosolids characterization and stabilization through 503
  - Site selection criteria, including soil types, geology, ground water characteristics, land use, topography, and climate
  - Management for application process, nutrient loading and public and environmental safety (buffer zones)



## Protect your right to Land Apply Biosolids – Understanding EPA's 503 Regulation Workshop Presenters

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