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Reclamation of Fire Ravaged Land using Biosolids

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Reclamation of Fire Ravaged Land with Biosolids - Hypothesis

- **Restores Suite of Ecological Services**
- **Improves water quality**
- **Provides Erosion Control**
- **Provides Influx of Organic Matter**
- **Minimizes Impacts of Hydrophobic Soils**
- **Aids in Establishment of Vegetative Biomass Which Can Serve as a Fire Break**

Background and Need

- **There is limited research and a need to better demonstrate and quantify the benefits biosolids can offer**
- **100,000,000+ tree mortalities in California alone after 7+ years of drought**
- **Fire environments will continue even if drought subsides**
- **Encourages cooperation between Multiple Regulatory Agencies, Public Utilities, Research Institutions, and the Private Sector**

Research Team in Place

- Greg Kester, Director of Renewable Resource Programs (CASA)
- Dr. Kate Scow, UC Davis
- Dr. Mike McFarland, Utah State
- Robert B. Brobst, P.E., USEPA (Retired)/Colorado State University
- Dr. Sally Brown, University of Washington;
- Dr. Samantha Ying, UC Riverside;
- Dr. Tom Young, UC Davis;
- Dr. David Crohn, UC Riverside;
- Dr. Ian Pepper, University of Arizona
- Angela Wilson, California Central Valley RWQCB
- Debbie Dumroese – US Forest Service

Subscriber Priority Program WRF

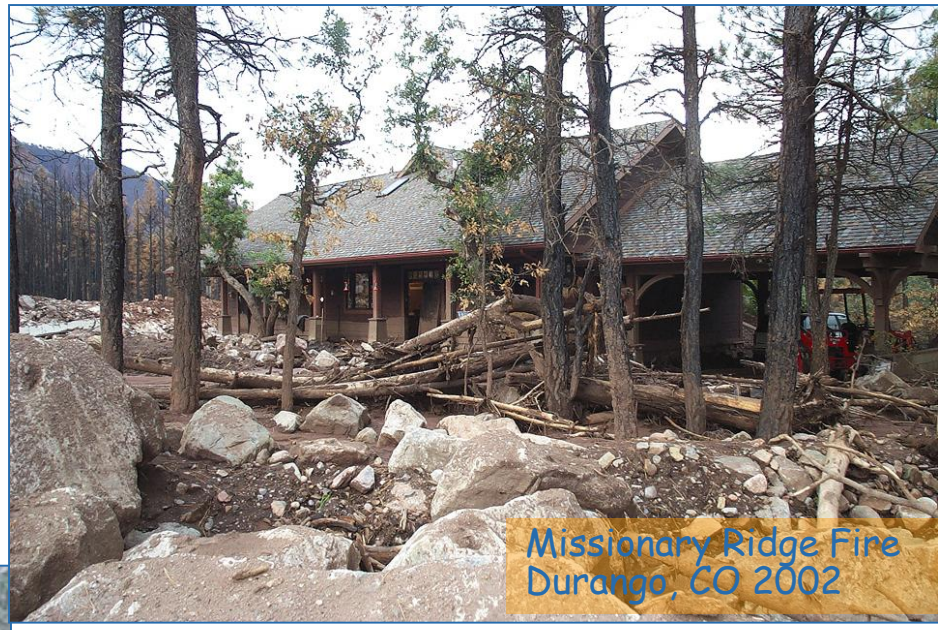
- Seeking $75,000 grant from Water Research Foundation
- Sanitation Districts of LA County submitted pre-proposal in partnership with CASA
- Accepted on short list to submit Full Proposal by 11/29
- Support of many CA POTWs as well as those across North America
- Have already received $82,500 from CASA members/SA

Fire Impacts on Forest, Rural, and Urban Environments

- Fire impacted landscapes depending on severity of fire (intensity x time) are
  - Increase in erosion
  - Resulting in soil and water quality degradation
  - Destruction of soil organic matter
  - Altered soil structure,
  - Altered soil nutrient levels
  - Significant debris flow and downstream impacts

Fire burning above San Bernardino, Oct 2003

Post-wildfire debris flows: significant losses of life and property:


Missionary Ridge Fire
Durango, CO 2002


Camp St Sophia,
Waterman Canyon,
San Bernardino, CA

Dec 25, 2003
- 16 deaths
- ~$2 billion for clean up and repair

Project Objectives

Use suite of biosolids to include Class B, EQ Pellets or Cake, EQ Compost, and controls on sites with various rates to evaluate:

- **water quality protection,**
- **future wildfire risk reduction,**
- **improvement in soil carbon levels**
- **reduced erosion**
- **vegetative biodiversity**
- **soil and water concentrations of nutrients, metals, pharmaceuticals, emerging contaminants**

Basics of Project Design

- Utilization of various biosolids
- Environmentally sensitive sites (proximity to SW)
- Slopes ~ 30%
- Have controls at each project location
- Plot size (specifics will be dependent on site)
  - Use of field equipment (e.g.~15m square)
  - Dual use plot (placed as erosion buffer strip as well a Soil quality/vegetative plot)
- Look at long term site in Colorado

Site Selection

- **Currently considering both Northern and Southern California sites**
- **Sites being sought so recommendations desired**
- **Return to Buffalo Creek, CO to evaluate long term benefits 20+ years after reclamation with biosolids**

Contributing Agencies $10,000 Each

- Sanitation Districts of LA County
- City of Fresno
- Orange County SD
- City of Los Angeles
- Inland Empire UA
- City of San Diego
- Central Valley Clean Water Association
- Bay Area Clean Water Agencies
- City of Santa Rosa ($2,500)
- Synagro Technologies – In-Kind
- Lystek International – In-Kind

Additional Subscriber Supporters

- New York City DEP
- Charlotte Water
- Metro Water District of Greater Chicago
- City of Austin
- King County
- City of Tacoma
- Metro Vancouver
- EBMUD
- City of Roseville
- City of Corona
- San Francisco PUD
- Woodward and Curran

How you can be involved

- **Need ~ $200,000 to execute demonstration projects**
- **Commit funding to effort; seeking $10,000 contributions, but will gladly accept anything**
- **Offer in-kind services in the form of biosolids, hauling, application, analytical services, technical review**

Questions?

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