



CWEA Biosolids Specialty Workshop: Understanding Future Regulatory Trends and Impacts on Biosolids Management In California



**Tuesday, January 26, 2010
Whittier, CA**



Sponsors for Whittier Workshop

- ◉ **Biosolids Committee**
- ◉ **Government Affairs Committee**
- ◉ **Los Angeles Basin Section**
- ◉ **San Francisco Bay Section**
- ◉ **CASA**



Volunteers for Whittier Workshop

- ◉ **Matt Bao, LACSD**
- ◉ **Robyn Beach, LACSD**
- ◉ **Gary Salva, LACSD**
- ◉ **Wendy Wert, LACSD**
- ◉ **Alec Mackie, JWCE**
- ◉ **Paul Bland, Ashbrook Simon-Hartley**
- ◉ **Dave Bachtel, Lee & Ro**



Dave, I found your van In Santa Barbara





Conference Logistics

- **Registration / Check-in / CEU Logging**
- **Facility Rules**
- **Restroom Location**
- **Break and Lunch Locations**
- **Housekeeping**
- **Volunteer Introductions**



Workshop Goal

Provide practical training to biosolids industry to promote consistent regulatory compliance and to maintain the long term viability of biosolids recycling in California



Objectives

- **Improve knowledge of and compliance with CA regulatory requirements**
- **Promote “Best Management Practices” for beneficial use**
- **Encourage resource stewardship and environmental protection**
- **Understand local and national trends**
- **Encourage information exchange and networking**
- **“Raise the bar” for biosolids industry**



Conference Schedule – Morning

- 7:45 – 8:00** Registration and Continental Breakfast
- 8:00 – 8:05** Welcome and Introduction
Jon Hay, B&V
- 8:05 – 8:35** Part 503 Refresher
Jon Hay, B&V
- 8:35 – 9:05** State General Order and Other Regulatory Issues
Jarrold Ramsey-Lewis, SWRCB
- 9:05 – 9:35** Biosolids Composting Rule
Greg Kester, CASA
- 9:35 – 10:05** County Ordinances and Local Issues
Matt Bao, LACSD
- 10:05 – 10:20** Networking Break



Part 503 Regulations Refresher



Jon Hay
Engineering Manager
Black & Veatch



A Plain English Guide to the EPA Part 503 Biosolids Rule

- [Table of Contents](#)
- [Chapter 1](#) - Use or Disposal of Sewage Sludge Biosolids
- [Chapter 2](#) - Land application of Biosolids
- [Chapter 3](#) - Surface Disposal of Biosolids
- [Chapter 4](#) - Incineration of Biosolids
- [Chapter 5](#) - Pathogen and Vector Attraction Reduction Requirements
- [Chapter 6](#) - Sampling and Analysis
- [References](#)
- [Appendix A](#) - Permit application Requirements
- [Appendix B](#) - Federal and State Biosolids Contacts
- [Appendix C](#) - U.S. Department of the Interior, Fish and Wildlife Service Regional Contacts



Get Your Own Copy of Plain English Guide

EPA Number: 832R93003

Date of Publication: September, 1994

Pages: 188

**Audience: concerned citizens, industry,
Regulated Community**

Available from: WRC WEB

<http://www.epa.gov/OW-OWM.html/mtb/biosolids/503pe/index.htm>



Presentation Outline

- ◌ **Introduction**
- ◌ **503 Historical Perspective**
- ◌ **Practices Covered**
- ◌ **Definitions**

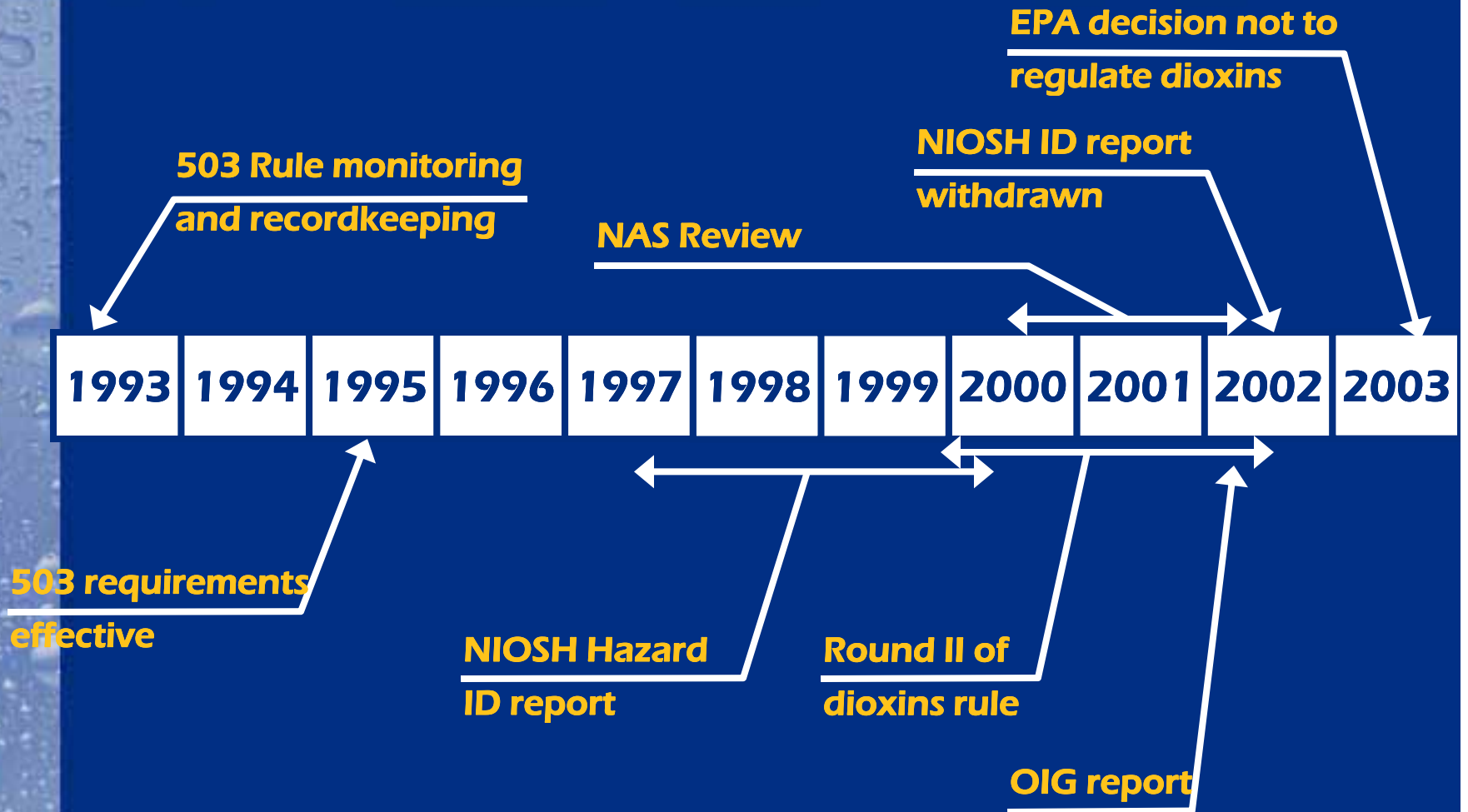


Presentation Outline (Continued)

- ◌ **Overview of Rule**
- ◌ **Options for Meeting Rule**
- ◌ **Part 503 EQ Requirements**
- ◌ **Additional Considerations**



Part 503 Historical Perspective





Practices Covered



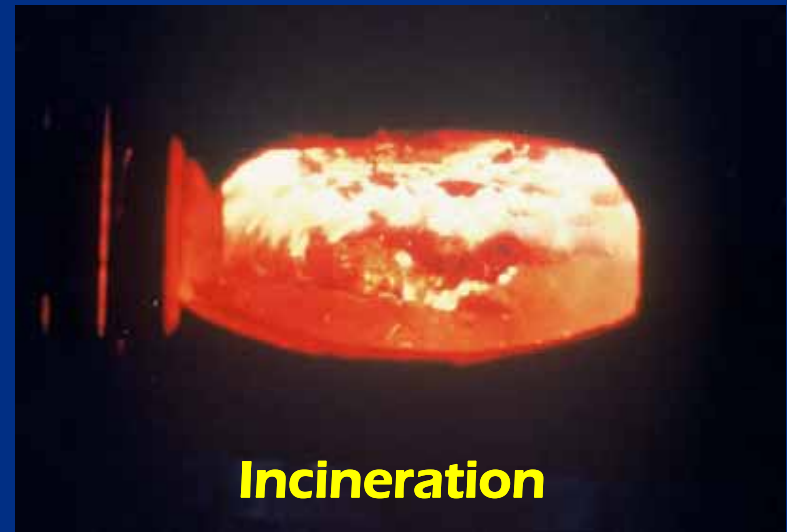
Bulk Land Application



Bagged Application



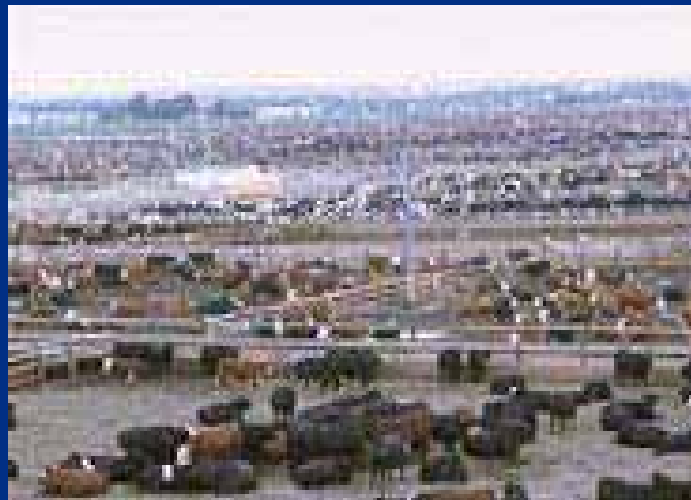
Surface Disposal



Incineration

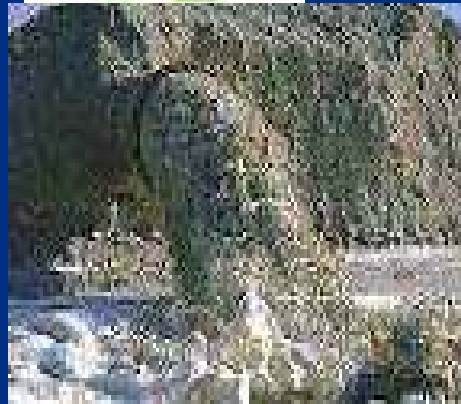


Bird and Animal Wastes Not Covered



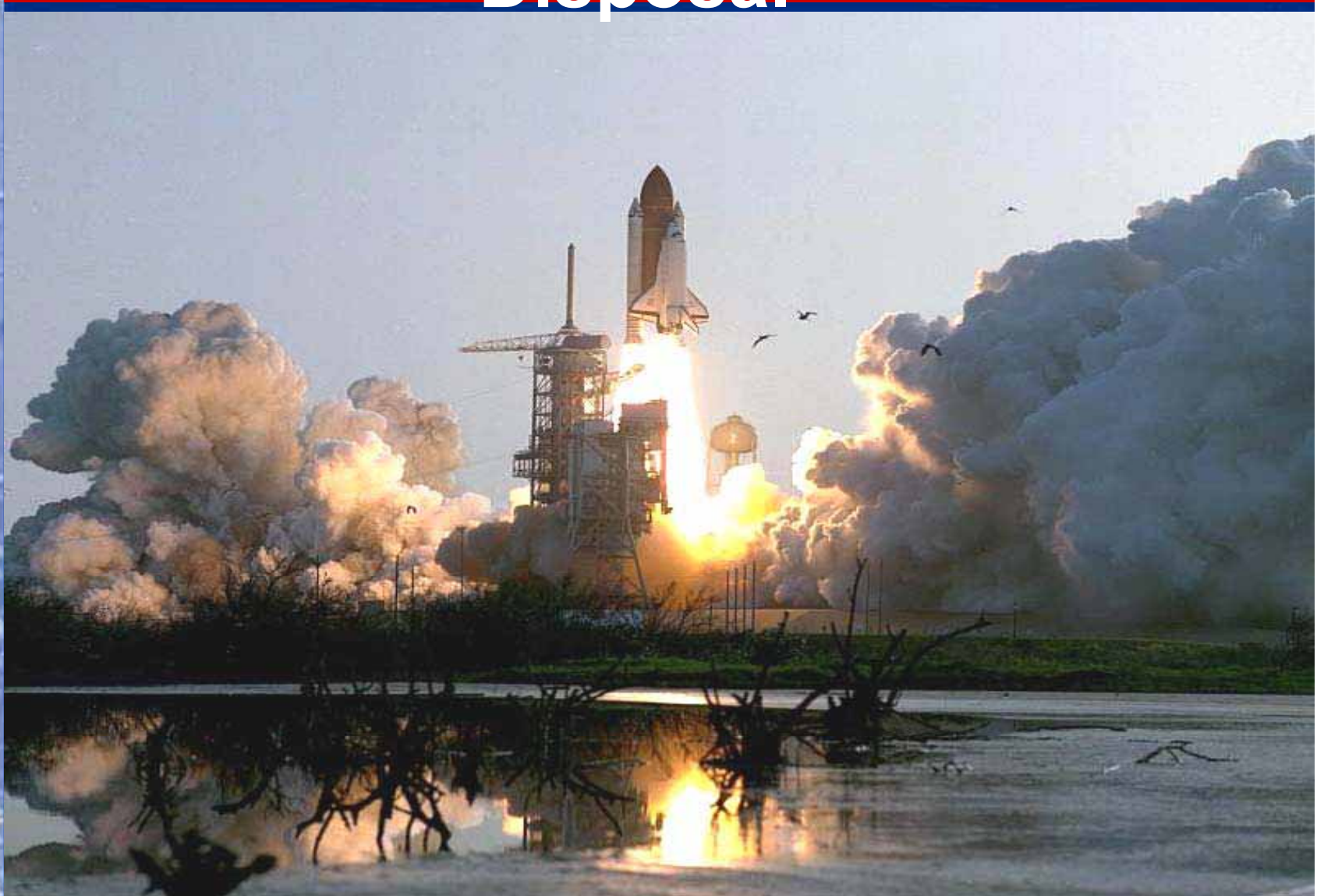


Hazardous Wastes Not Covered





503 Regs Don't Cover Space Disposal



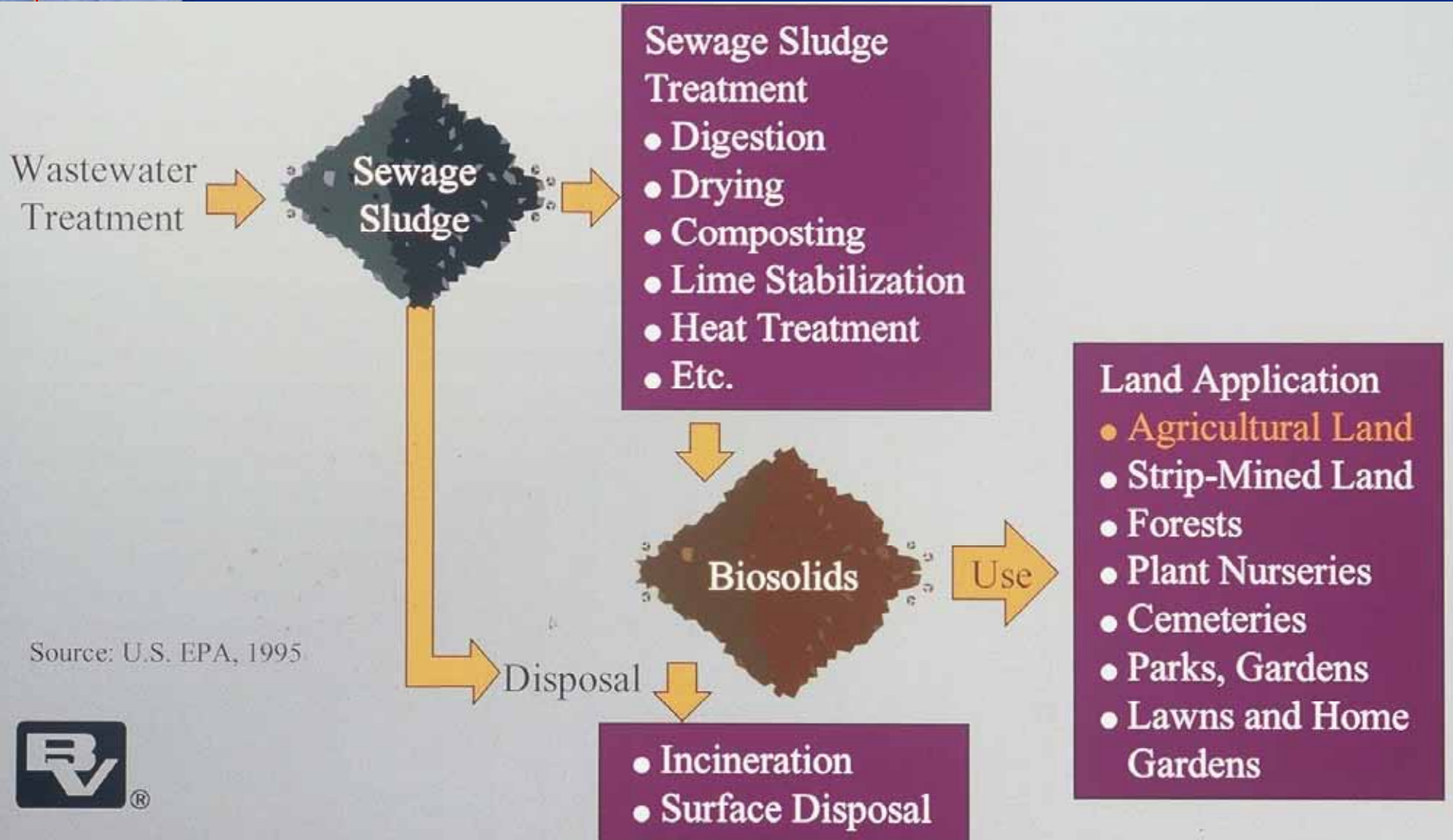


Some Key Definitions

- **Sewage Sludge** - a solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works (includes scum or solids or material derived from sewage sludge but excludes grit and screenings and ash from sludge incinerator)
- **Biosolids** - type of sewage sludge produced by wastewater treatment processes that can be beneficially recycled (used)

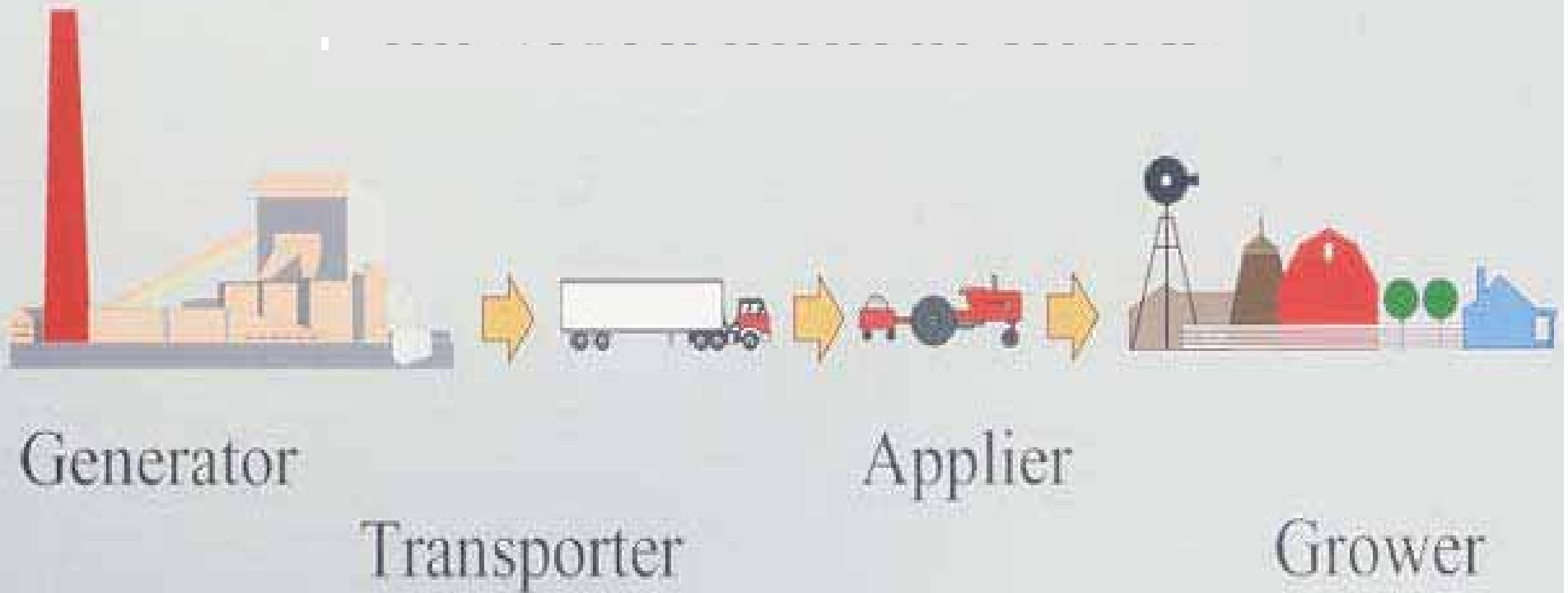


Generation, Disposal and Beneficial Use of Biosolids





Biosolids Management Chain for Agricultural Use



Part 503 Applies to Generator and Applier Only



More Definitions

- **Pathogen Reduction (PR)** – decreasing the presence of disease-causing organisms, such as certain bacteria, viruses and parasites, through processing and site management practices
- **Vector Attraction Reduction (VAR)** - reducing characteristics that attract rodents, flies, mosquitoes, or other organisms capable of transmitting infectious agents through processing and site management practices



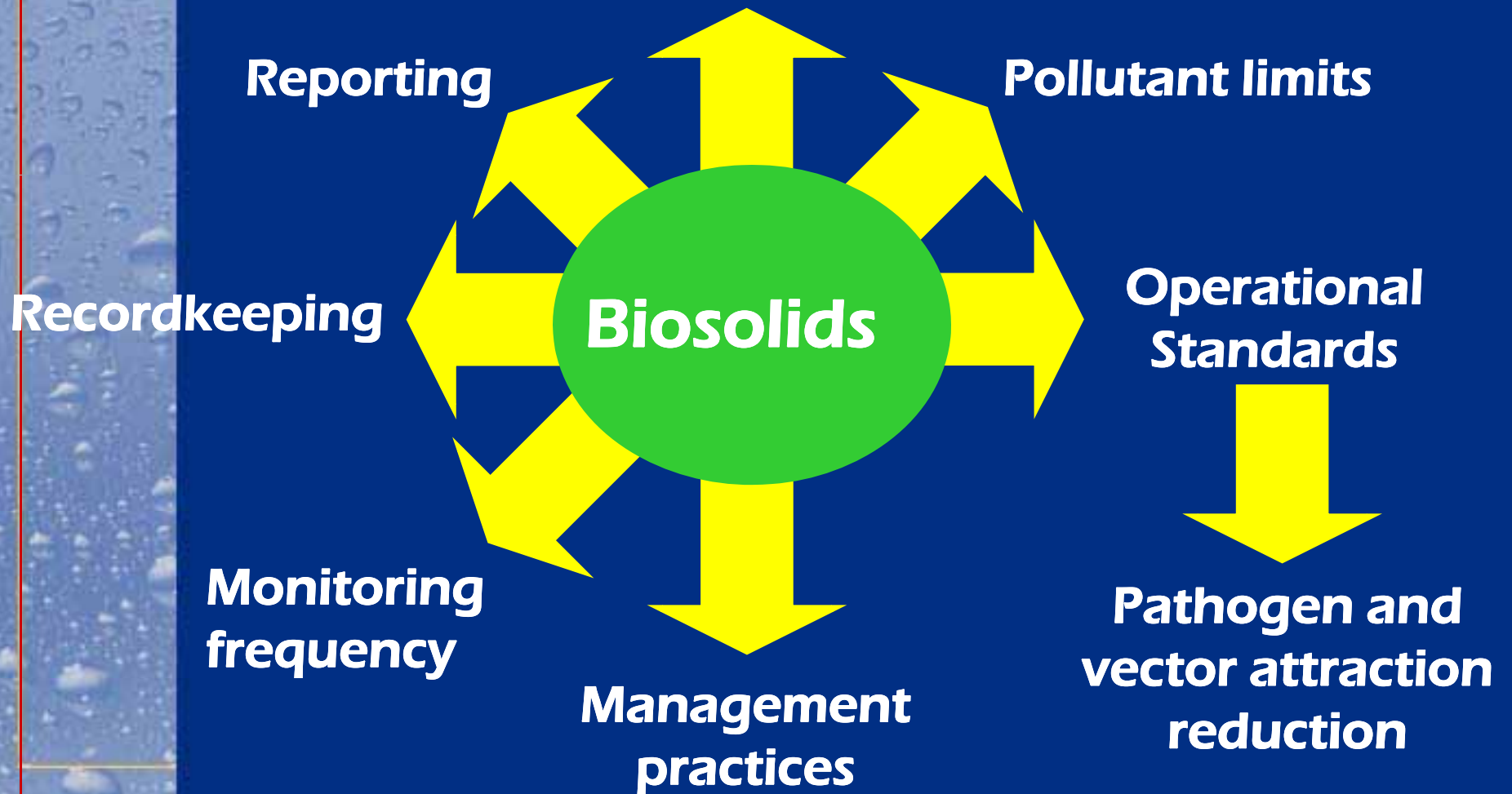
Biosolids Classification

- **Pollutant Concentrations**
- **Pathogen Reduction**
- **Vector Attraction Reduction**



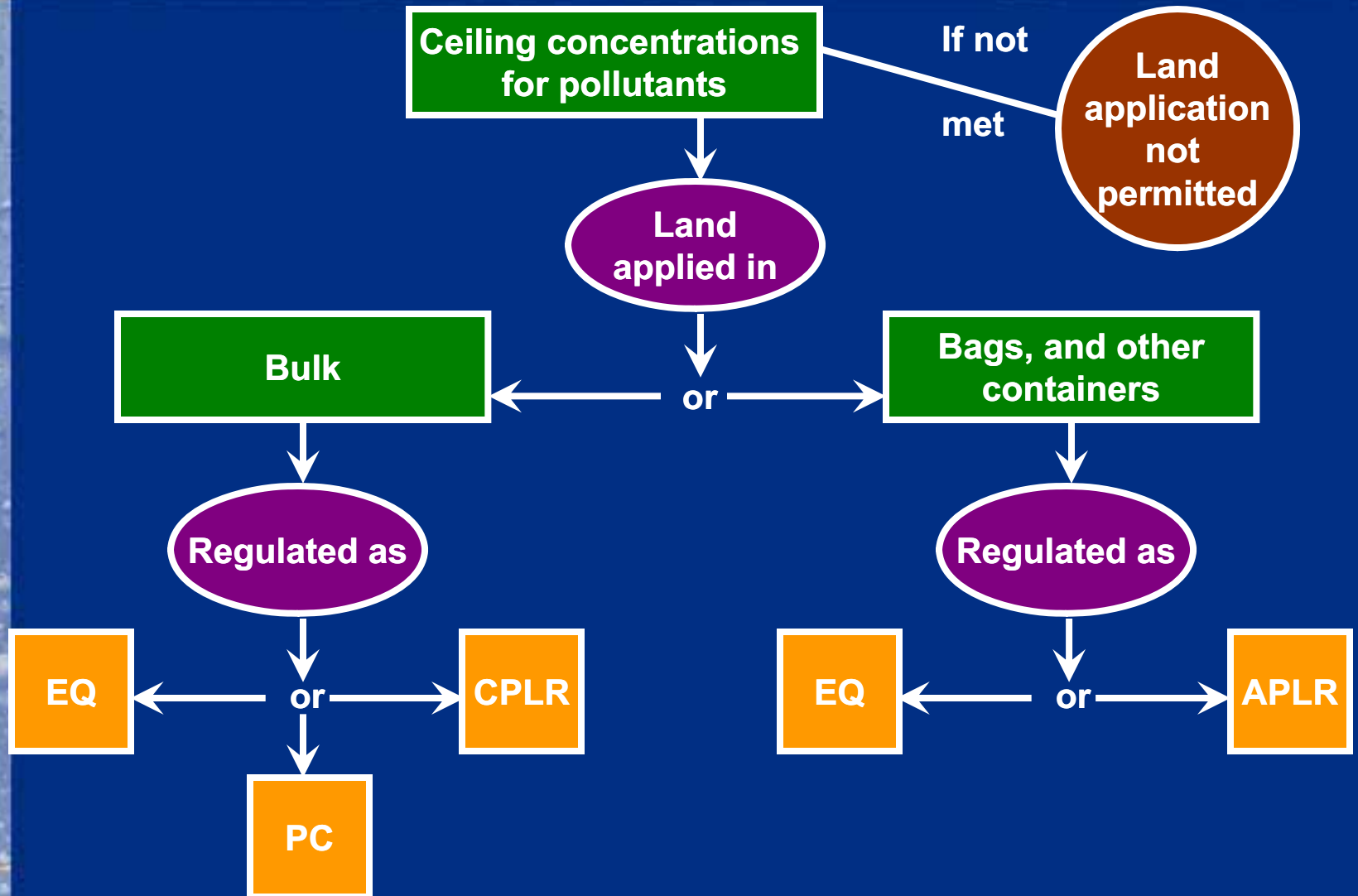
Overview of Land Application Rule

General Requirements





Options for Meeting Certain Part 503 Land Application Requirements





“Exceptional Quality” Biosolids Limits and Requirements

- **Pollutant Limits**
 - **Bulk or bagged biosolids PC limits**
- **Pathogen Requirements**
 - **Any of the Class A requirements**
- **Vector Attraction Reduction Requirements**
 - **Any 1 of the requirements in Options 1 through 8**
- **Monitoring, Recordkeeping, and Reporting**
 - **Preparer responsible for recordkeeping**



Pollutant Concentrations

Pollutant (mg/kg)	Exceptional Quality	Non-Exceptional Quality
Arsenic	41	75
Cadmium	39	85
Copper	1500	4300
Lead	300	840
Mercury	17	57
Molybdenum		75
Nickel	420	420
PCBs	4	8.6
Selenium	100	100
Zinc	2800	7500



Part 503 Requirements for Class A

○ *Performance Standards*

- Fecal coliform density < 1,000 MPN/g TS
- Salmonella density < 3 MPN/4 g TS

○ *Operational Standards*

- “Every particle” exposed to target conditions



Operational Compliance Alternatives

Alternative 1 - "Time/Temperature" Criteria

$$D = \frac{50,070,000}{10^{(0.14 t)}}$$

D = time (days)

t = temperature (C)

- 24 hours at 55 C (131 F)
- 12 hours at 57.5 C (136 F)

Alternative 3 – Pathogen Measurement

- Fecal coliforms, viruses, helminth ova



Multi-Stage Thermophilic Digestion Modified Egg Shaped Digesters (Hyperion)





Operational Compliance Alternatives

- **Alternative 5** - Employ approved PFRP
“Process to Further Reduce Pathogens”
 - Composting
 - Heat Drying
 - Pasteurization
- **Alternative 6** - Demonstrate equivalency to PFRP



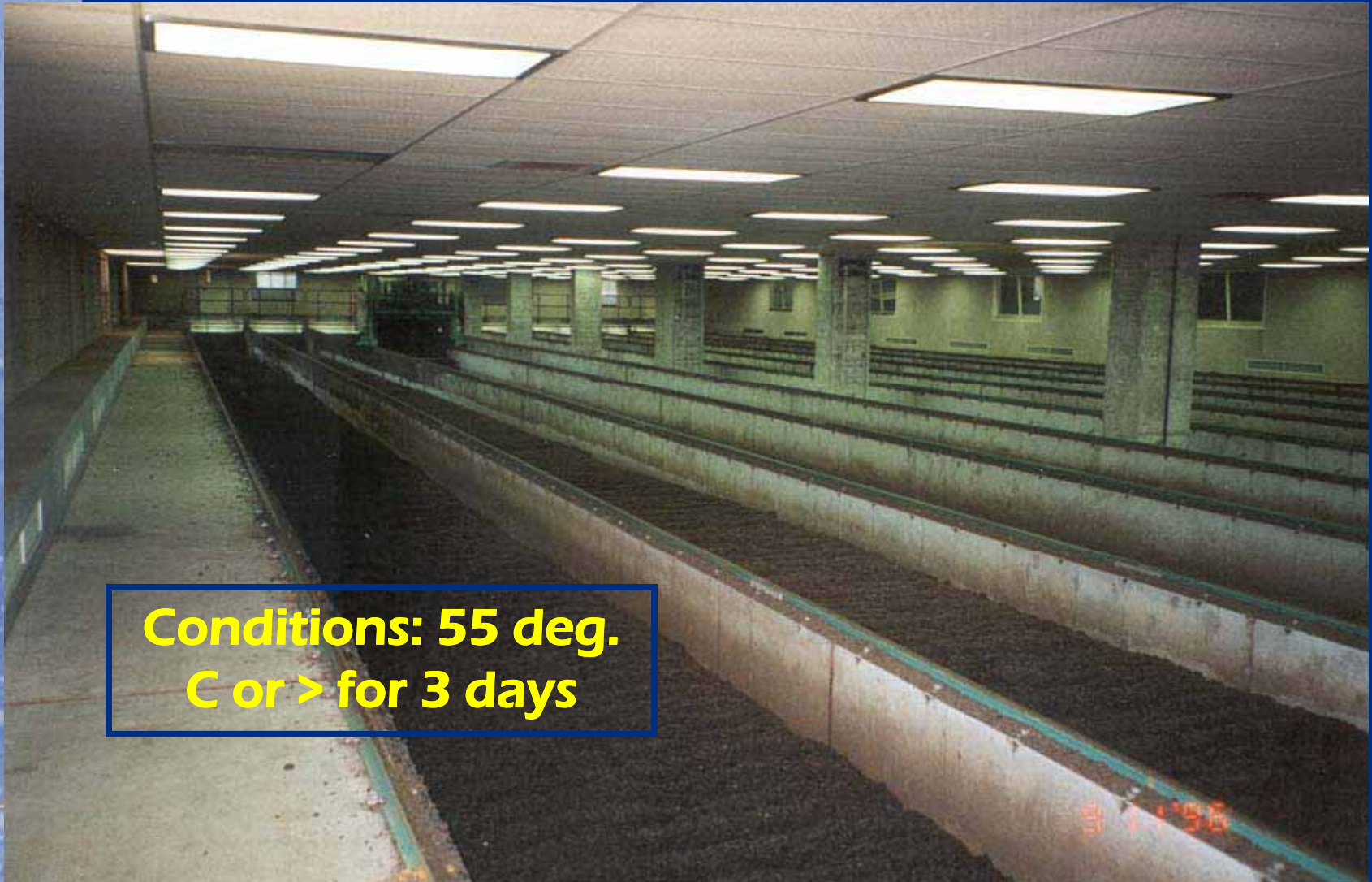
PFRP: Windrow Composting LACSD, Carson (Circa 1987)



**Conditions: 55
deg. C for 15 days
or > and 5 turns**



PFRP-Agitated Bed Composting (Rancho Las Virgenes Composting Facility)



**Conditions: 55 deg.
C or > for 3 days**



PFRP: Cocomposting Demonstration City of Oceanside, CA



**Conditions: 55
deg. C or > for 3
days**

07-09-2003



PFRP: Pasteurization System (Kruger, Europe)



**Conditions: $T > 70$
deg. C for 30 min
or $>$**



Most Widely Used VAR Options for EQ Biosolids

- **Option 1: 38 percent reduction in VS content (e.g., aerobic and anaerobic digestion)**
- **Option 5: Aerobic processes > 40 deg C for 14 days or longer (e.g., composting)**
- **Option 7: Drying to 75 percent solids with no unstabilized solids (e.g., heat drying)**



VAR Option 8: Heat Drying (USF Dragon Dryer, Newport, TN)





VAR Option 5: ASP Composting City of Philadelphia WD, PA

**Conditions: 40 deg. C for
14 days or >**





When must Class A limits be met?

- When biosolids are used or disposed
- When the biosolids are prepared for sale or give-away in a bag or other container for land application
- When the biosolids or derived materials are prepared to meet the requirements for EQ biosolids

Pathogens reduction must take place before or at the same time as VAR, except when the pH adjustment, percent solids VAR, or incorporation options are met.



Type of Land Different Types of Biosolids May Be Applied

Biosolids Option	Pathogen Class	VAR Options	Type of Land	Other Restrictions
EQ	A	1-8	All^a	None
PC	A	9 or 10	All except lawn and home gardens^b	Management practices
	B	1-10	All except lawn and home gardens^b	Management practices and site restrictions
CPLR	A	1-10	All except lawn and home gardens^c	Management practices
	B	1-10	All except lawn and home gardens^c	Management practices and site restrictions
APLR	A	1-8	All, but most likely lawns and home gardens	Labeling, management practice

^a Agricultural land, forest, reclamation sites, and lawns and home gardens.

^b It is not possible to impose site restrictions on lawns and home gardens.

^c It is not possible to track cumulative additions of pollutants on lawns or home gardens.

Source: EPA Guide to Part 503 Rule



Questions???

**Beneficial use of biosolids is good for
the environment and taxpayer**





Conference Schedule - Morning

- 10:20 - 10:55** Building a Successful Regional Project
Liz Ostoich, Synagro Technologies
- 10:55 - 11:25** National Regulatory Trends & Issues
Greg Kester, CASA
- 11:25 – 11:55** Encina Biosolids Heat Dryer
Kevin Hardy, EWA
- 11:55 - 1:00** Lunch on Site and Presentation
Assembly Bill 32 CHG Update
Patrick Griffith, LACSD



Lunch Time, time to unwind and stress-relieve.





Conference Schedule - Afternoon

1:00 - 1:30	Rialto Slurry Carb™ Facility <i>Ray Kearney, Enertech</i>
1:30 - 2:00	Air Quality Regulations <i>Layne Baroldi, Synagro Technologies</i>
2:00 - 2:30	Managing Biosolids and Generating Renewable Power <i>Mark Lawler, VRSD</i>
2:30 - 2:45	Networking Break
2:45 - 3:15	City of LA Biosolids Slurry Project-TIRE <i>Omar Maghaddam, City of LA</i>
3:15 - 3:45	Inland Empire Regional Composting Facility Jeff Ziegenbein, IEUA
4:15	Adjourn



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- **Omar Maghaddam, CLA**
- **Jeff Ziegenbein, IEUA**



A Special Thanks to Sponsoring Agencies for Hosting Workshops

- **LACSD-South**
- **SFPUC-North**