STARTING A NEW (EXPANDING/ EXISTING) COMPOSTING FACILITY

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Managed Organic Recycling

Wilson Nolan
Liberty Composting

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MANAGED ORGANIC RECYCLING, INC

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BARRIERS

- Environmental
  - Public Perception
  - NYMBY
  - Location
  - Market Demand
- Technical
  - Approval Time (Time is $$$)
  - Permits (CIWMB, Air Districts, RWQCB, Land Use)
  - Technology Acceptance
    - Micorporous Covers, Positive Air w/Biofilters, Inside Bldgs/Biofilters
- Funding
  - Private, Public
  - Funding/ROI (Capital and O & M)

CHALLENGES

- Approvals
  - CEQA (Land Use)
  - NOI OR WDR (Water Quality)
  - Solid Waste Facility Permit
    - Compost Facility Plan
    - Odor Management Plan
  - Air Permit
    - Permit to Construct
    - Source Testing
    - Permit to Operate

FUNDING

- CalRecycle Organics Waste Programs
- Greenhouse Gas Reduction Grant and Loan Programs
- Farm & Ranch Solid Waste Cleanup and Abatement Grant Program
- Recycling Market Development Zone Loan Program
- Federal Grants for Business
- New USA Funding Grants

GRANT PROPOSAL

- Need and Justification
- Goals and Objectives
- Work Plan Evaluation
- Budget
- Application Completeness
- Evidence of Recycled Content
- Purchasing Policy Directive

SUCCESS STORIES

- Occuirrh Mt. Biosolids Composting Facility (Salt Lake City, UT)
- Perdue Agribusiness Poultry Waste Composting Facility (Seaford , DE)
- Liberty Compost Biosolids Monocomposting Retrofit (Lost Hills, CA)
- TESCAN SSO, Bueno Ares, Argentina
- City of Wangarrata, Food Waste, Melbourne, Australia

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CBA 2018 expanding capacity

OCCUIRRH MT, UT

40 t/d Biosolids

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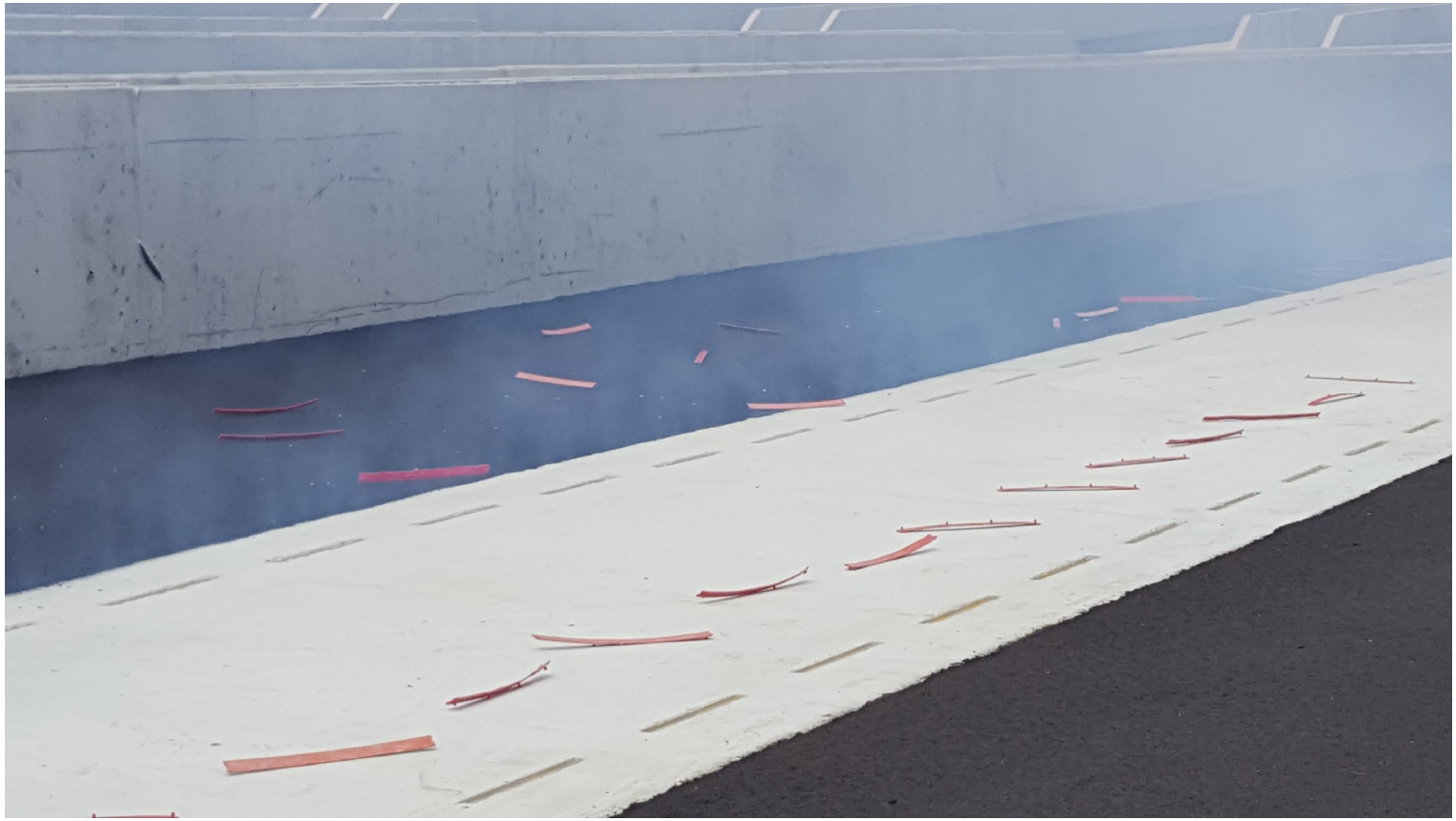
CBA 2018 expanding capacity

PERDUE FARMS, DE

150 kt/yr Poultry Waste

PERDUE FARMS, DE

150 kt/yr Poultry Waste



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- Established in 1990, expanded to 786 kt/y in 1996
- Biosolids, green waste, food waste
- Windrow composting
- Actual tonnage, 200 kt/y to 400 kt/y
- 2008, Rule 4565 adopted
- Reduce tonnage to 100 kt/yr or retrofit to achieve 90 percent VOC control

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Retrofit Considerations

- Capital investment required
- All contracts short term, no tonnage guarantee
- Technology risk
- Micropore fabric covered ASP lowest cost and scalable
- Little VOC data
- Conducted pilot studies, 2011 and 2012

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Pilot – Flux Boxes

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Pilot Study – Screening Covers

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Pilot Study– Flux Chambers

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Pilot Study Results

- Feedstock composted well
- Resultant compost comparable with windrow compost
- Cover Technology C achieved 93% VOC control
- Cover technology was feasible for use at Liberty
- Cover technology was scalable
- Other . . .

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Ground Seal/Wind Anchor

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Full Scale Project

- Commissioned in 2012 on time and on budget
- 13 aeration pads with covers, 150 kt/yr
- Individual fans, PLC controlled
- Surface aeration system
- Wireless temperature probes
- Cover placement machine
- Cover storage
- Compliance testing

CBA 2018 expanding capacity

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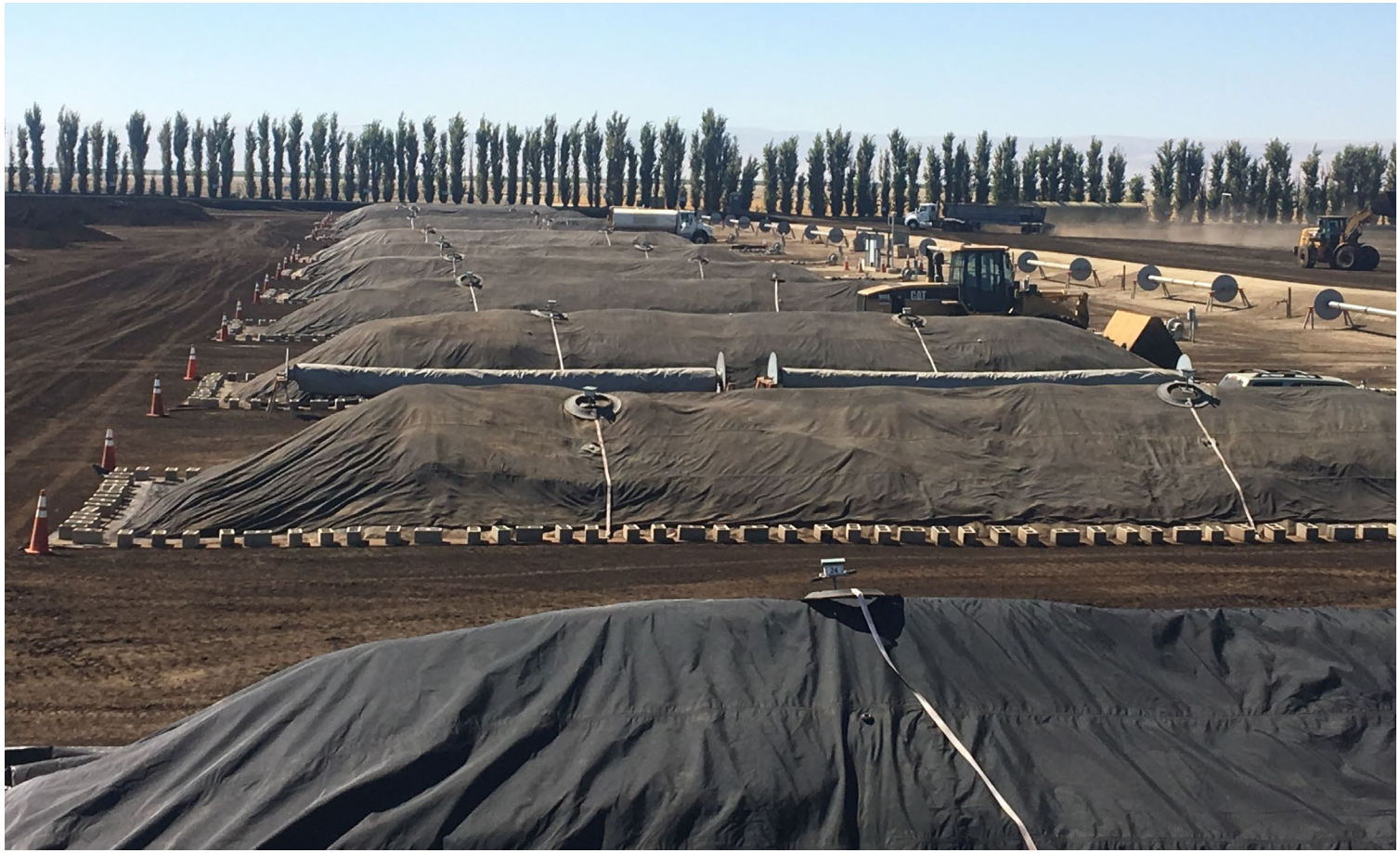
13 Covered Aeration Pads



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Surface Aeration System

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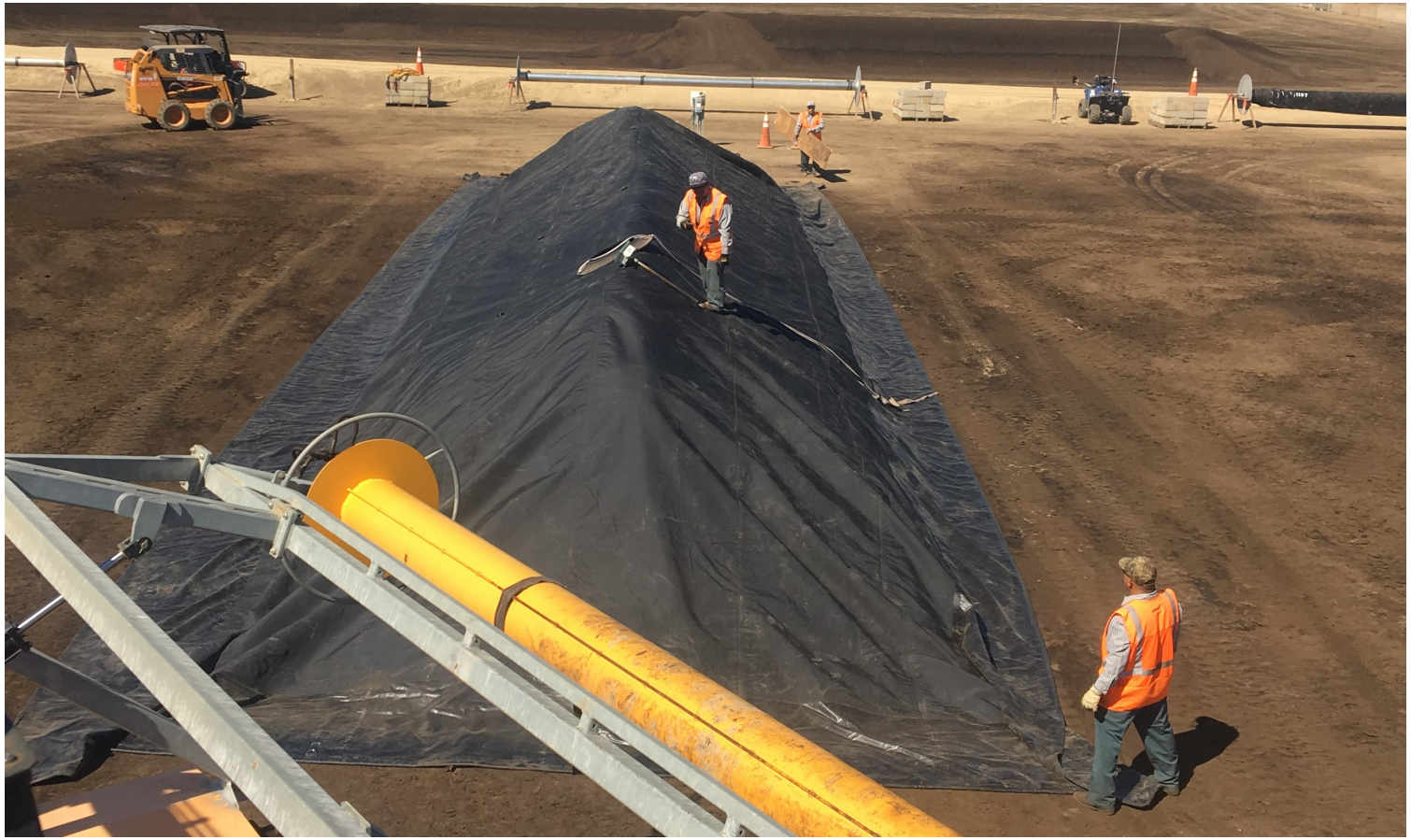
Cover Placement Machine

LIBERTY COMPOST

Covering a Pile



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Compliance Testing

- 2012 95 percent VOC control
- 2014 95 percent VOC control
- 2016 95+ percent VOC control
- 2018 95+ percent VOC control

- Modified US EPA Method 25.3, 3.1 pounds VOC's per gate ton baseline emission factor