



City of Bend Class A Biosolids
for Ranch and Home.

Building Healthy Soils for the Future.

**41st Annual ORWEF Water Environment School at Clackamas
Community College**

City of Bend Water Reclamation Facility



Bend Water Reclamation Facility

- Average Daily Flow: 5.8MGD
- Recycled Water - Pronghorn Golf Course: >2.5MGD
- Digester Sludge Concentration: 3.3%
- Dry to Class B
- New in 2017 – Dry to Class A
- Biosolids Production: 3.0 DT/Day (1100 DT/YR)
- Available Application Land: 1600 acres

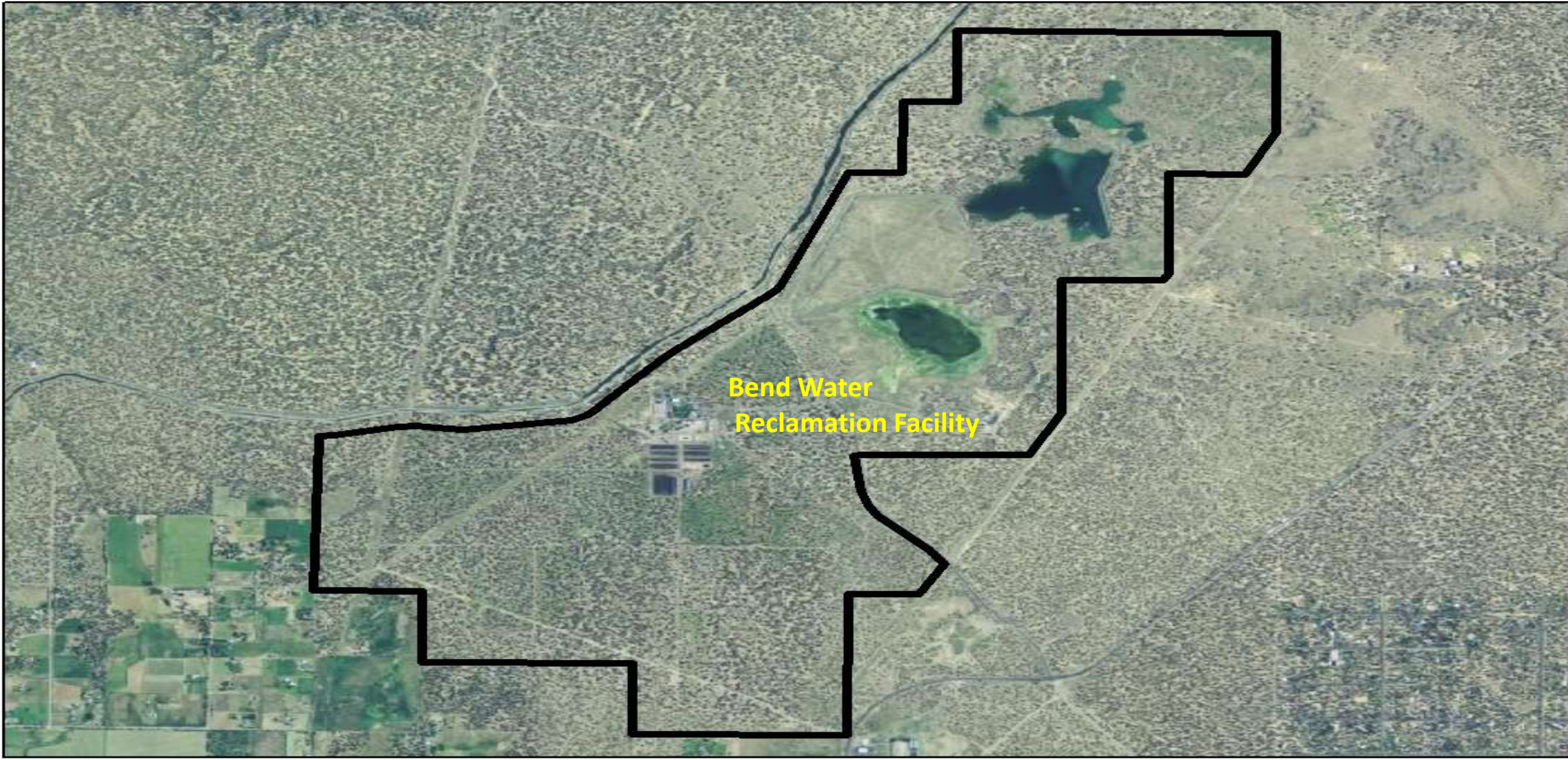
Headworks Equipment - 3MM and 6MM Screening



Anaerobic Digesters - one 900,000 & two 450,000 Gallons



1600 Acres Plant Facilities



Bend Water
Reclamation Facility

12 Acres of Drying Bed Capacity



Summer Drying Period



Brown Bear Turning Operation



Mid to Late Summer Operation: 88-90% Solids



Dried Biosolids Covered - Storage Area 2,500 Cu/yds



Land Application Class B Program



Dec. 2014 USFS Clear Creek Study Site: End Date 2018



Sample a Pile?.....



Class A Standard Exceptional Quality

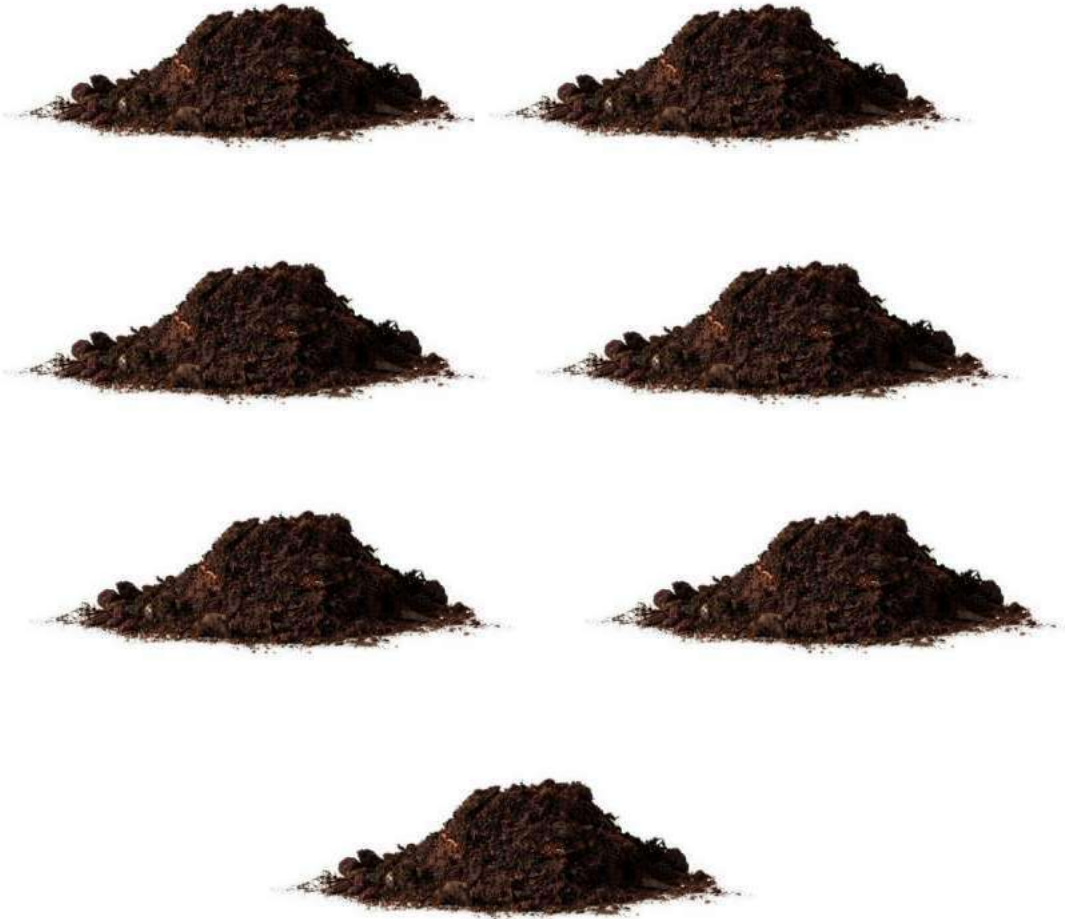
Parameter	Alternative
Pathogen Reduction	40 CFR Part 503.32(a)(6) Alternative 4 - (Sampling)
Vector Attraction Reduction	40 CFR Part 503.33 (b)(7) Option 7 - (>75% Solids)
Pollutants	40 CFR Part 503.10 (e) - (Table 3 Metals)

Class A Standard Exceptional Quality

Parameter*	Limit
Fecal Coliform	< 1,000 MPN/g of dry solids
Salmonella	<3 MPN/4 g of dry solids
Viable Helminth Ova (parasitic worms)	<1 Ova/4 g of dry solids
Enteric Virus (roto virus)	< 1 PFU/4 g of dry solids

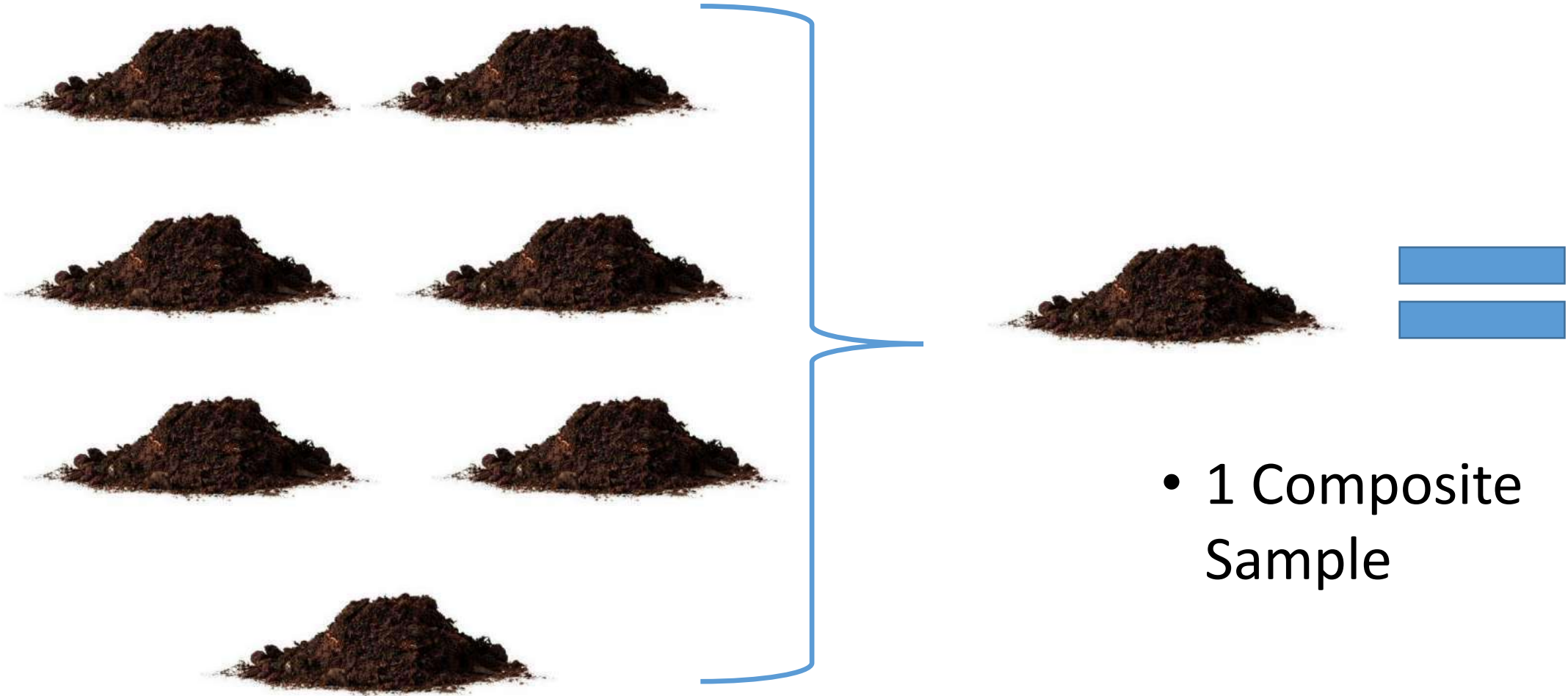
*Note Regulations do not require testing for both fecal coliforms and salmonella, just one along with viable helminth ova and enteric viruses.

Salmonella, Enteric Viruses, Helminth Ova



- 7 Discrete Samples
- 7 separate tests
- 7 different results
- No Composites

Metals



- 1 Composite Sample

Class A Standard Exceptional Quality



Hampton Ranch Trucking Operation



Hampton Ranch: Class A Program, Application



Deschutes Recycling



Mix Design Criteria

Mix Design	Ratios (volume)	Notes	Operation
A	1:1:1:1 (Yard Debris : Dried Biosolids : Yard Debris : Dried Biosolids)	Goal of this mix is to produce a biosolids/yard debris mix that has a high fertility value	<ul style="list-style-type: none">• Layer the yard debris and biosolids based on the ratios provided.• Allow moisture to build-up in the layered mixes for 1-2 weeks.• Turn/mix the mixtures after the 1-2 week period to assess odor and “feel” test.• Depending on the qualitative assessment, turn the mixture again and let set for 1-2 weeks then turn the mixture again.
B	1:1:1 (Yard Debris : Dried Biosolids : Yard Debris)	Goal of this mix is to produce a biosolids/yard debris mix that has a lower fertility value and useful as a soil conditioner	

Class A Biosolids Exceptional Quality and Bend Recycling Soil builder



Mix Design. 50/50 Biosolids/Soil Builder



Environmental Center: Branding Meeting, Victory Garden



More Considerations

- No DEQ Site approval required: Unrestricted use
- Nitrogen Value = Future fee likely 50% of commercial cost to rancher.
- \$50K annual savings related to application class “B”
- Branding our product: make available to local gardeners, Earth day.
- Annual Report: One page: Volume in /Volume out summery.
- Amend Biosolids Management Program.
- Partner with local Master Gardeners.

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