Regulation of Environmental Impacts from Food Animal Production
April 23, 2014
NOTICE:
THIS PROPERTY IS A FARM
Farms have animals.
Animals make:
Funny sounds
Smell bad. And
Have sex outdoors.
Unless
You can tolerate.
Noise,
Odors, and
Outdoor sex.
Don't buy property
Next to a farm!
<table>
<thead>
<tr>
<th>Sector Description</th>
<th>Large</th>
<th>Medium</th>
<th>Small</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would be required to report or not</td>
<td>All would report</td>
<td>Some may need to report/see note 1 below</td>
<td>Would not need to report; not a CAFO unless designated by permitting authority</td>
</tr>
<tr>
<td>Cattle or cow/calf pairs</td>
<td>1,000 or more</td>
<td>300–999</td>
<td>Less than 300</td>
</tr>
<tr>
<td>Mature dairy cattle</td>
<td>700 or more</td>
<td>200–699</td>
<td>Less than 200</td>
</tr>
<tr>
<td>Veal calves</td>
<td>1,000 or more</td>
<td>300–999</td>
<td>Less than 300</td>
</tr>
<tr>
<td>Swine (weighing over 55 pounds)</td>
<td>2,500 or more</td>
<td>750–2,499</td>
<td>Less than 750</td>
</tr>
<tr>
<td>Swine (weighing less than 55 pounds)</td>
<td>10,000 or more</td>
<td>3,000–9,999</td>
<td>Less than 3,000</td>
</tr>
<tr>
<td>Horses</td>
<td>500 or more</td>
<td>150–499</td>
<td>Less than 150</td>
</tr>
<tr>
<td>Sheep or lambs</td>
<td>10,000 or more</td>
<td>3,000–9,999</td>
<td>Less than 3,000</td>
</tr>
<tr>
<td>Turkeys</td>
<td>55,000 or more</td>
<td>16,500–54,999</td>
<td>Less than 16,500</td>
</tr>
<tr>
<td>Laying hens/broilers</td>
<td>30,000 or more</td>
<td>9,000–29,999</td>
<td>Less than 9,000</td>
</tr>
<tr>
<td>(w/liquid manure handling system)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chickens other than laying hens (no liquid manure handling system)</td>
<td>125,000 or more</td>
<td>37,500–124,999</td>
<td>Less than 37,500</td>
</tr>
<tr>
<td>Laying hens (no liquid manure handling system)</td>
<td>82,000 or more</td>
<td>25,000–81,999</td>
<td>Less than 25,000</td>
</tr>
<tr>
<td>Ducks (no liquid manure handling system)</td>
<td>30,000 or more</td>
<td>10,000–29,999</td>
<td>Less than 10,000</td>
</tr>
<tr>
<td>Ducks (w/liquid manure handling system)</td>
<td>5,000 or more</td>
<td>1,500–4,999</td>
<td>Less than 1,500</td>
</tr>
</tbody>
</table>
A typical water treatment process includes several steps to remove unwanted substances from water.

1. **First Filtration**
   - Water is filtered through screens that remove fish, leaves, and trash.

2. **Coagulation**
   - Alum is added to form sticky flocs. Mud, bacteria, and other particles stick to the flocs. The water then passes into settling basins, where the flocs sink.

3. **Second Filtration**
   - The water trickles down through sand or gravel, which filters out algae, bacteria, and some chemicals.

4. **Chlorination**
   - Chlorine is added to kill remaining organisms.

5. **Aeration**
   - Forcing air through the water releases gases, reducing unpleasant odors and taste.

6. **Additional Treatment**
   - Sodium or lime may be used to soften hard water. Some communities add fluoride, which helps prevent tooth decay.
Advanced Nitrification/Denitrification (AND)
“Super Soils”
Ambient Temperature Anaerobic Digester and Greenhouse for Swine Waste Treatment and Bioresource Recovery: Barham Farm
Loyd Ray Farms System

- food + water → pig

- 65 kW Microturbine

- flare
- flush
- biogas
- recycle

Aeration Basin (1.1 MGal)

- Anaerobic Digestion (2 MGal)

Storage (10.5 MGal)

(not to scale)

= pump

irrigation
Belt Systems for Manure Removal
the demonstration of gasification technology to reduce odors and other challenges associated with poultry operations while providing a means of renewable energy recovery and biochar production
Hoop Houses/Deep Bedding

Friends of Family Farmers Photostream:
http://www.flickr.com/photos/31347258@N05/