

Agriculture and Air Quality in Idaho

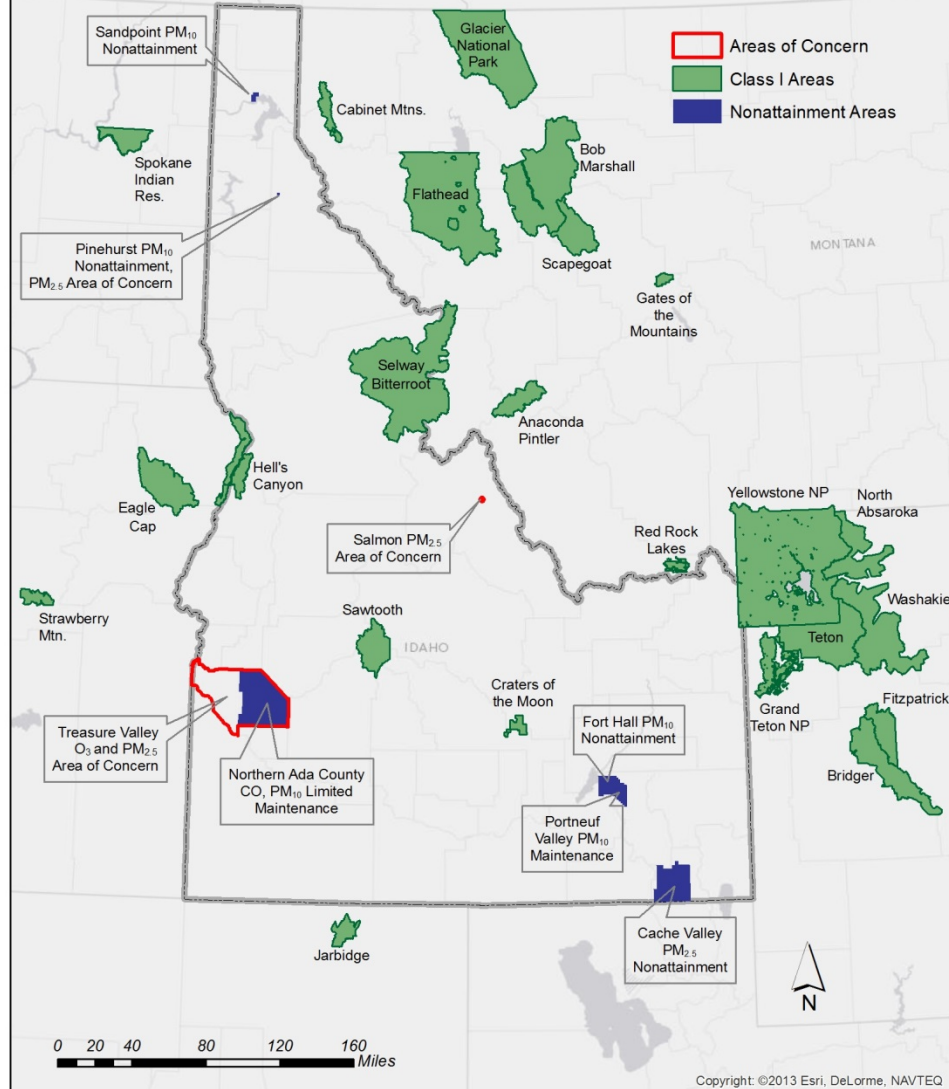
Agricultural Air Quality Task Force

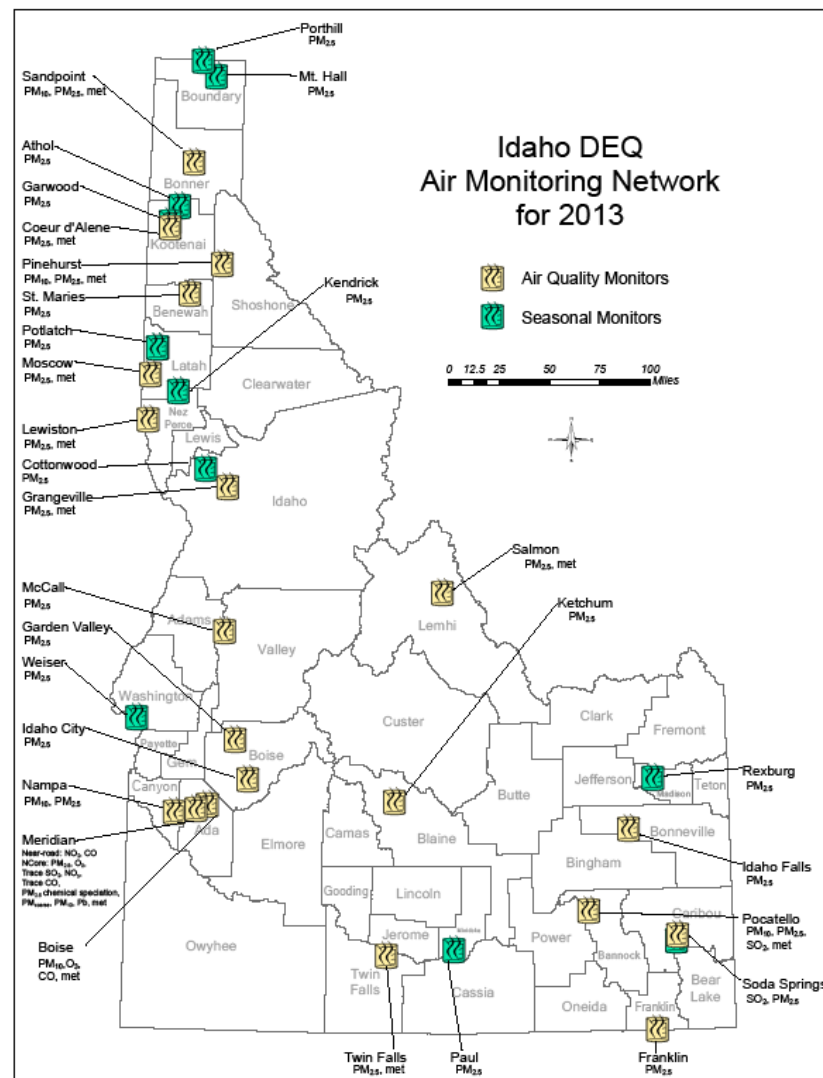
April 30 & 31

Boise, Idaho



Idaho Air Quality Planning Areas





Major Emissions Sources Affecting Air Quality in Idaho (not in order)

Motor Vehicles

Residential Wood Combustion

Wildfire

Prescribed Fire

Biogenic

Industrial

Agriculture

Fugitive Dust - Non-anthropogenic



Agricultural Emissions Affecting Air Quality in Idaho

- IDAPA defines “Agricultural Activity and Services” as the usual and customary activities of cultivating the soil, producing crops and raising livestock for use and consumption”.
- Three major agricultural emissions categories:
 1. Agricultural burning.
 2. Fugitive dust.
 3. CAFO/Dairy.



Crop Residue Burning

- IDAPA 58.01.01.617 – Crop Residue Disposal
 - The open burning of crop residue on fields where the crops were grown is an allowable form of open burning if conducted in accordance with Idaho Code.
 - Includes:
 - Entire fields and spots within a field
 - Conservation Reserve Program (CRP) lands
 - Food plots
 - Pastures
 - Registration and \$2/acre fee required prior to burning.
 - Burning is only allowed with DEQ written approval on the day of the burn.
 - Burn decisions evaluate air quality and weather
 - Burning is not allowed on weekend and holidays



Fugitive Dust

- IDAPA 58.01.01.650 - Rules for the Control of Fugitive Dust
 - All reasonable precautions shall be taken to prevent particulate matter from becoming airborne.
 - “Reasonable” considers mitigating factors:
 - Proximity to populations, Class I areas, activities, atmospheric conditions.
- Enforcement is rare and is usually initiated by complaints in the Regional Offices.
- DEQ will be entering a negotiated rulemaking in May 2014 to specifically address fugitive dust rules related to agricultural practices.



Animal Operations

- IDAPA 02.04.16 - Rules Governing Agriculture Odor Management
 - ISDA has the authority to manage odors generated on agricultural operations, except for beef cattle feeding operations and large swine and poultry operations.
- IDAPA 02.04.15 – Rules Governing Beef Cattle Feeding Operations
 - ISDA has the authority to govern the design, function and management practices of waste systems on beef cattle feeding operations.
 - Required nutrient management plans address odors generated in excess of odors normally associated with raising beef cattle in Idaho.
- IDAPA 58.01.09 – Rules Regulating Swine Facilities
 - IDEQ issues permits and has authority to manage nuisance odors. Odor management plans may be a condition within the permit.



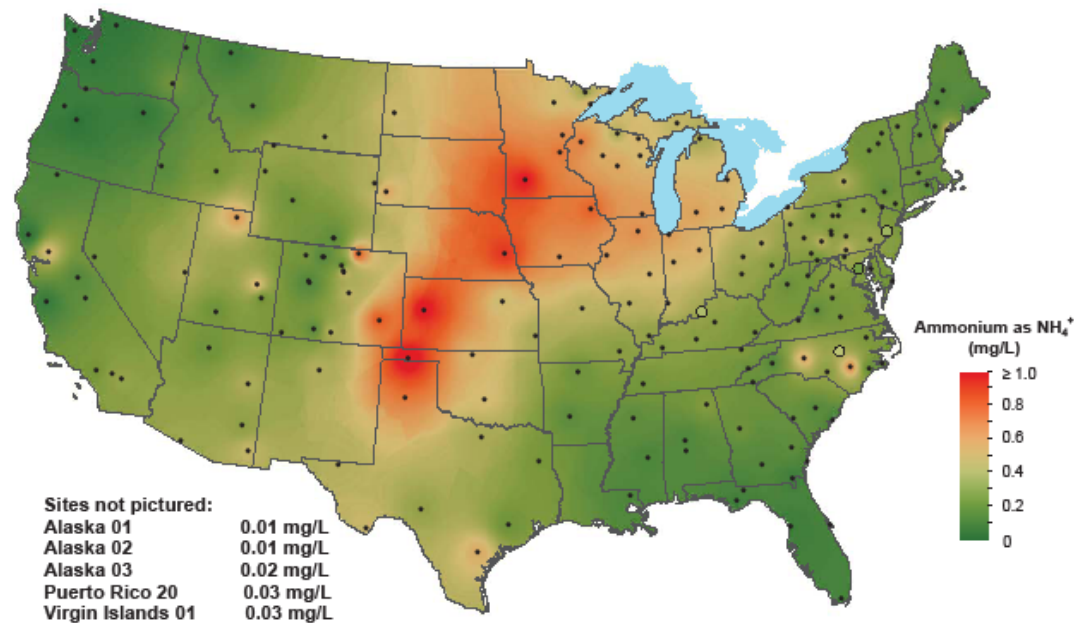
Air Quality Issues Relating to Dairies

- Particulate matter – fugitives
- Particulate matter – secondary
- Ozone
- Visibility
- Deposition – wet and dry
- **Emissions of Concern**
 - **Ammonia (NH₃)**
 - Volatile Organic Compounds (VOC)
 - Fugitive dust
 - Hydrogen Sulfide (H₂S) and other odor compounds



Precipitation-weighted Annual Deposition

Ammonium ion concentration, 2012



National Atmospheric Deposition Program/National Trends Network
<http://nadp.isws.illinois.edu>



IDEQ Permit by Rule for Dairies - History

- Environmental group sued a dairy
- Environmental group and dairy industry agreed to enter negotiated rule making
- Establishing a rule based on utilization of Best Management Practices (BMPs) for ammonia emissions reduction at dairy farms in Idaho
- Registration based on farm type and number of animals
- Adopted as a Temporary Rule by DEQ Board of Directors
- Effective on July 1, 2006
- Approved by 2007 Idaho Legislature for final adoption.



IDEQ Permit by Rule for Dairies

- IDAPA 58.01.01.760 – Rules for the Control of Ammonia From Dairy Farms
 - Owners who exceed animal number thresholds must register with IDEQ to operate.
 - Thresholds/animal numbers were determined by negotiated and accepted ammonia emission factors and a 100 TPY aggregate emission “trigger”.
 - To comply with a permit, the dairy must incorporate best management practices (chosen from list provided in the rule) which are ranked based on known ammonia emissions reductions. 20 points is assigned to the most effective BMPs (e.g. synthetic lagoon cover), other practices are then scaled downward. A total of 27 BMP points ensures compliance.
 - Annual inspections (often 2/year) are conducted by ISDA - BMP points are confirmed by observations and inspection of records.
 - ISDA refers enforcement to IDEQ.



Animal Thresholds – Animal Units and Cow Basis (1400lb)

System	Open Lot Dairies	Freestall Scrape Dairies	Freestall Flush Dairies
Total cows (100 t NH ₃) threshold			
No land app	5063	2781	1638
27% volatilization ¹	4887	2733	
80% volatilization ²	4569	2643	
AU (100 t NH ₃) threshold			
No land app	7089	3893	2293
27% volatilization ¹	6842	3827	
80% volatilization ²	6397	3700	



BMP Categories

- System/Component Based:
 - Waste storage and treatment systems.
 - General practices.
 - Free stall barns.
 - Open lots and corrals.
 - Nutrition.
 - Composting practices.
 - Land Application.



2012 Dairy Ammonia PBR Summary

- 87 permits at 46 facilities
- 79 routine inspections
- 9 verification inspections – often needed for seasonal BMPs
- Average facility BMP = 31 points
- ~280,000 head
- No enforcement actions referred to DEQ.

