

Some Unique Elements of the  

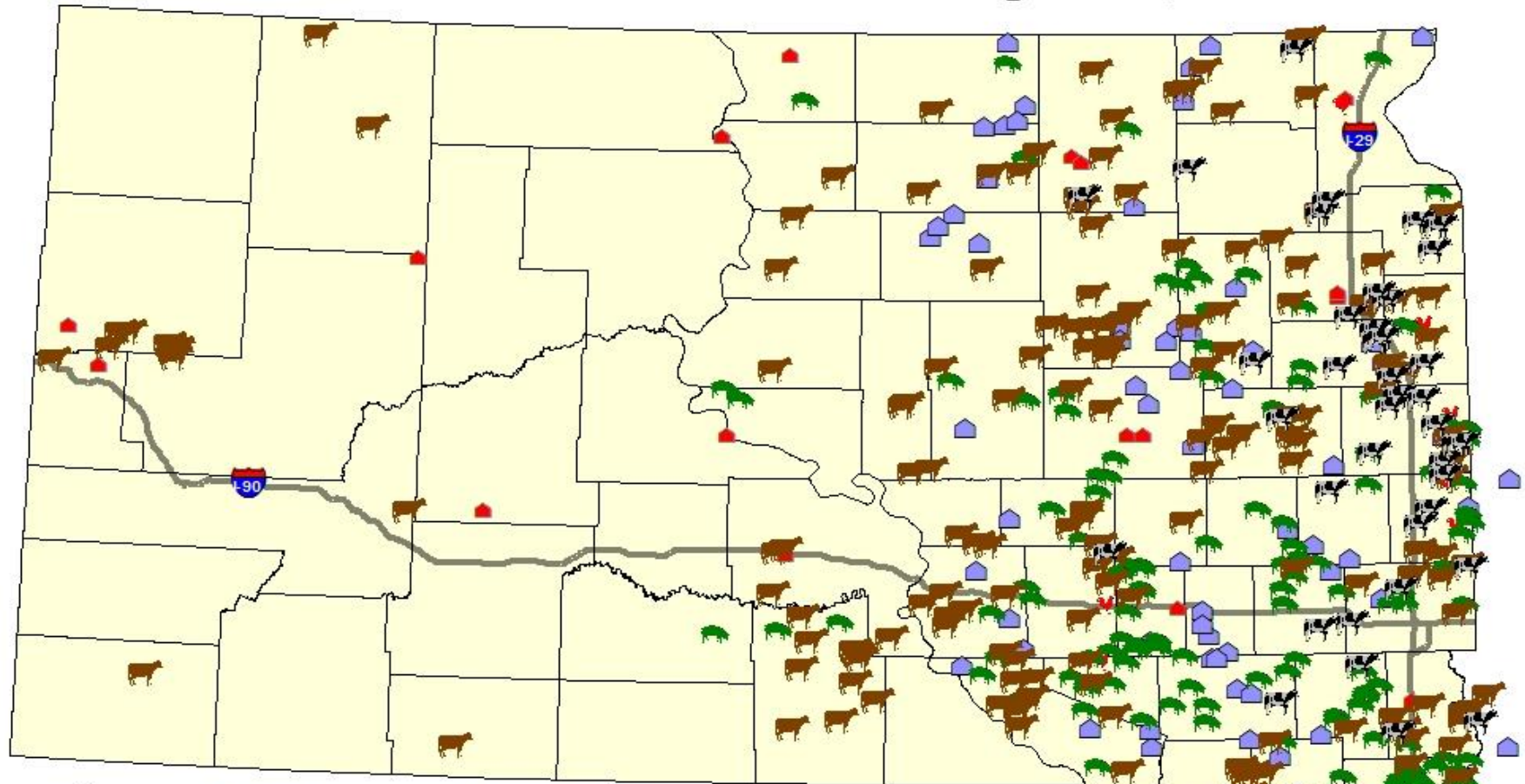
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2017 South Dakota General  
Water Pollution Control Permit  
for Concentrated Animal  
Feeding Operations

Western States Water Council

June 28, 2017

# SD DENR Permitted CAFOs - August 18, 2016



-  41 Mature Dairy Cattle - 112,253 head
-  162 Beef and Other Cattle - 529,887 head
-  130 Swine - 646,670 head
-  7 Poultry - 4,263,060 head
-  62 Multi Animals - 3,461,729 head
-  19 Livestock Auctions
- 8 CAFOs Located in Another State with Land Application Areas in SD

**429 Total Permits**



# Reasons for Permit Changes

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- ❑ 2012 EPA CAFO Regulations
- ❑ 2012 South Dakota NRCS 590 Nutrient Management Plan Standards
- ❑ Changes based on interaction and suggestions from producers, engineers, crop consultants, environmental groups, and others



# Permit Goals

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- Include federal and state requirements ensuring manure management systems are properly designed, constructed, operated, and maintained so they protect the quality of South Dakota's surface waters,
- Include state requirements protecting shallow aquifers,

# Permit Goals

(continued)

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- Ensure the nutrients generated are land applied as a fertilizer following an approved nutrient management plan, and
- Requirements are understandable by producers, design engineers, and crop consultants so they provide a roadmap for environmental compliance



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# Unique Features of the General Permit



# Who Needs Coverage?

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- SDCL 34A-2-36.2 requires all concentrated animal feeding operations to operate under a general or individual water pollution control permit
- Medium and small AFOs can be required to obtain general permit coverage through county zoning
- AFOs can voluntarily obtain permit coverage



# Who Needs Coverage?

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- Large CAFOs located in other states or in Indian Country that stockpile or land apply un-manipulated manure or process wastewater on land under the jurisdiction of South Dakota shall obtain state permit coverage under this permit for their activities in South Dakota. The Secretary can waive this requirement where this is addressed in a permit issued by the U.S. EPA





# State or NPDES Permit

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- The general permit can be either a NPDES permit or a state permit.
  - Same design standards for new and expanding operations,
  - Same shallow aquifer protection requirements,
  - Same initial and annual nutrient management plan requirements,
  - Same inspection and recordkeeping requirements,

# State or NPDES Permit

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- Different application requirements,
- Different issuance processes, only the NPDES permit has an opportunity for a contested case hearing,
- Different effluent limits – only the NPDES permit allows a discharge to waters of the state,
- Different annual reporting requirements, and
- Different processes for updating nutrient management plans

# State or NPDES Permit

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- State permit - Operations with uncovered manure containment systems are required to submit NRCS' Soil, Plant, Air and Water (SPA W) model to verify they are designed to not discharge
- NPDES permit – SPA W only required for new source swine, poultry, and veal operations



# Bad Actor Law

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- To ensure compliance with South Dakota's "bad actor" law, SDCL 1-40-27, any corporation, partnership, limited liability partnership (LLP), limited liability company (LLC), or trust shall provide with their application information on their legal structure including any parent corporation or subsidiary corporations of the applicant



# Nutrient Management Planning

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- ❑ A producer can sell or give away up to 100 cubic yards of solid manure per year without including that manure in their annual nutrient management plan,
- ❑ All other manure or process wastewater must be included in and land applied in accordance with a nutrient management plan,
- ❑ All operations with manure containment systems or land application areas within  $\frac{1}{4}$  mile of streams, where Topeka shiners have been observed or have potentially occupied shall develop and implement an Endangered Species Action Plan,

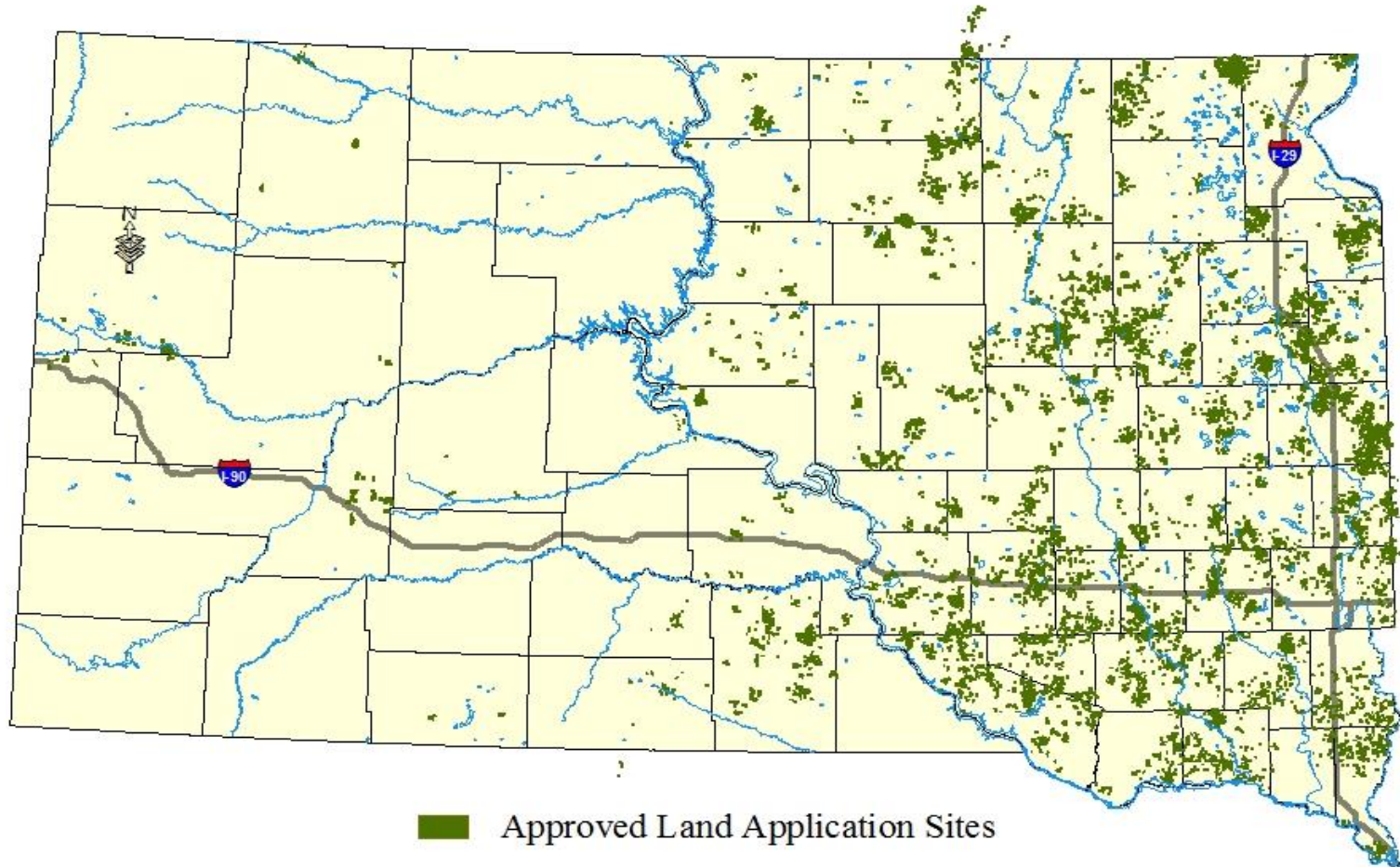


# Nutrient Management Planning

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- A field can only be in one nutrient management plan, and
- Has requirements for sending manure out of state

## SD DENR Approved Land Application Sites - September 21, 2016



\*Permitted operations currently have 1,136,463.1 acres in approved nutrient management plans. Based on the cropping information included with the nutrient management planning spreadsheets, these fields are capable of accommodating (on average) 106,224,091 pounds of Nitrogen and 39,450,446 pounds of Phosphorus annually.

# Simple, Enforceable Phosphorous Index

Table 2. Nitrogen Need/Phosphorus Crop Removal Manure Application Determination Table<sup>1</sup>

Soil Test Phosphorus (ppm)		Predicted Annual Erosion – Sum of Wind and Water Erosion (tons per acre per year) <sup>2</sup>				Greater than 8
		Less than 6		6 to 8		
		100 Foot Vegetated Buffer		100 Foot Vegetated Buffer		
Olsen	Bray-1	Yes	No	Yes	No	
0-25	0-35	Nitrogen Need	Nitrogen Need	Nitrogen Need	Nitrogen Need	Five Year Phosphorus crop removal
26-50	36-75	Nitrogen Need	Nitrogen Need	Nitrogen Need	Five Year Phosphorus crop removal	One Year Phosphorus crop removal
51-75	76-110	Nitrogen Need	Five Year Phosphorus crop removal	Five Year Phosphorus crop removal	Five Year Phosphorus crop removal	One Year Phosphorus crop removal
76-100	111-150	One Year Phosphorus crop removal	One Year Phosphorus crop removal	One Year Phosphorus crop removal	One Year Phosphorus crop removal	No application
Greater than 100	Greater than 150	No application	No application	No application	No application	No application

Crop removal is the amount of phosphorus a crop removes in one crop year (SDSU-Extra 8009). Five year phosphorus crop removal is phosphorus removal for up to a five year crop sequence.

<sup>1</sup> South Dakota's nutrient management planning tool also includes a Phosphorus Loss Risk Assessment which categorizes phosphorus loss as a Low Risk for fields with a Nitrogen Need determination, a Moderate Risk for fields with a Five Year Phosphorous crop removal determination, and a High Risk for fields with a One Year Phosphorus crop removal determination.

<sup>2</sup> Wind erosion calculations shall be completed for all fields with predominate soils having a wind erodibility index (I) ≥ 134.



# Requirements to Protect Shallow Aquifers

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- Clay liner requirements 20% more stringent than NRCS' national standard.
  - Reference Appendix 10D of the Agricultural Waste Management Field Handbook,
  - Minimum of 18 inches/maximum of 30 inches clay liner thickness (after compaction), and
  - Permeability coefficient less than or equal to  $1 \times 10^{-7}$  cm/sec, specific discharge is less than or equal to  $9 \times 10^{-7}$  cm/sec (maximum operating level);



## Requirements to Protect Shallow Aquifers

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- SDCL 34A-3A-24 defines a shallow aquifer
- Permit contains soil boring requirements for new or expanding process wastewater containment systems. If located over a shallow aquifer, ground water monitoring or a ground water discharge permit is required



# NMP Fields – Sampling Requirements

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The soil sampling requirements included in the 2003 and 2017 general permits were developed in cooperation with South Dakota State University, the South Dakota Department of Agriculture, and the South Dakota Natural Resource Conservation Service

- ❑ Annual soil samples from 0 to 2 feet are required on all manure land application fields prior to manure application,
- ❑ If a land application site is located over a shallow aquifer additional soil sampling is required,
- ❑ The producer has the option to conduct two different types of additional soil sampling



# Sampling Requirements - Option 1

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The producer may elect to conduct additional deep soil sampling which consists of taking nitrate-nitrogen soil samples from 2 to 4 feet in addition to the standard nutrient management plan requirement of nitrate-nitrogen soil samples from 0 to 2 feet

- If the 2 to 4 foot soil test results indicate that there is greater than 30 pounds of nitrogen, the nitrogen recommendation in the rate calculation must be reduced an additional four pounds of nitrogen for each five pound increment above 30 pounds



# Sampling Requirements – Option 2

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The producer may elect to take soil samples for nitrate-nitrogen from 0 to 2 feet both prior to manure application and within four weeks after harvesting the crop

- If the residual nitrate-nitrogen in the post-harvest soil samples is above 100 pounds per acre, the field will not be available for land application until one full growing season has passed. If a soil sample is taken the following year and shows that the nitrate-nitrogen has dropped below 100 pounds per acre, manure application may resume

# Producer Training

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- Producer Training – Required to have attended in the 3 years prior to applying for permit coverage
- Recent CAFO Environmental Training Programs reached participants from livestock operations that represented approximately 22,500 animals in the beef industry, 4,000 dairy cows, 60,000 pigs, 5 million laying hens, and 3,000 sheep. Survey results showed a 21 to 32 percent increase in the overall understanding of the topics, and more than 63 percent of the participants said they plan to adopt certain practices they learned at the training sessions

# Bankruptcy Reporting

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- Within 10 days after commencement of a voluntary or involuntary bankruptcy proceeding naming a producer as a debtor, the producer shall notify the Secretary by certified mail. The notice shall provide information on the producer's continued ability to operate and maintain the operation in compliance with this general permit and include the bankruptcy bar date. If a trustee or other entity becomes responsible for the operation, including the responsibility for compliance with this permit, the Secretary shall be notified within 10 days of that change

# Water Usage

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- Any producer submitting a permit application for a new or expanding operation which results in a total population that will be at least two times the minimum threshold identified for a large CAFO and gets water for their operation from a combination of wells or surface water sources, and does not have a Water Right permit at the time they submit an application for this permit, shall install a flow meter between the water source(s) and the first water use location. The flow meter shall be used to document the operation does not exceed the maximum allowable daily water volume and flow rate allowed without having a Water Right permit



# For more information:

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<http://denr.sd.gov/des/fp/cafo.aspx>

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