

# Nebraska Permitting Solutions

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**DEPT. OF ENVIRONMENT AND ENERGY**

# NDEE NPDES Permitting

- ▶ Section writes permits, calculates limits, and reviews notices of intent for all NPDES permits in Nebraska
- ▶ Approximately 600 individual NPDES and pretreatment permits
  - ▶ 53 Major NPDES Permits
  - ▶ POTWs, process and non-process dischargers, NPP, land application
- ▶ CSW/ISW and general permit reviews - 1600 active CSW, 800 active ISW
- ▶ Concentrated animal feeding operation (CAFO) permitting
  - ▶ 460 NPDES CAFO permits
  - ▶ 1400 construction and operating permitted facilities
- ▶ When fully staffed, section has 5 writers
- ▶ Current permit backlog 6%
- ▶ This talk will cover a unique permitting situation

# Permitting and Pesticides

- ▶ NDEE has been using new permitting techniques and implementing new requirements for a facility impacted by pesticides
- ▶ Permitted facility was formerly an ethanol producer
  - ▶ Started processing treated seed in roughly 2015-2016
  - ▶ Approximately 98-99% of all treated seed in USA used for production sent to facility



# Permitting and Pesticides

- ▶ The facility used grains, food byproduct, and treated seed to make ethanol
- ▶ Ethanol production resulted in wastewater and solids/wet cake
- ▶ Wastewater stored in lagoons
  - ▶ Lagoon liners show evidence of damage
  - ▶ Pollutants include neonicotinoids, herbicides, insecticides, ammonia
  - ▶ Previously wastewater and solids were land applied without treatment
  - ▶ Roughly 150 million gallons untreated wastewater
  - ▶ Roughly 100,000 tons of wet cake containing pesticides
- ▶ NDEE was notified in 2018 of environmental problems
- ▶ Facility is currently under enforcement, seed companies currently volunteering to perform cleanup which is ongoing
- ▶ NDEE needed to reissue and modify the existing NPDES permit, as well as issue an individual storm water permit

# Permitting and Pesticides

- ▶ Raw wastewater composition - average testing results of three lagoons
- ▶ For pesticides, only glyphosate has a NDEE Title 117 criteria

Pollutant	Unit	Average Concentration	EPA Benchmark
Abamectin	ug/L	312.00	0.17
Azoxystrobin	ug/L	97.73	44
Chlorantraniliprole	ug/L	483.60	3.02
Clothianidin	ug/L	9883.69	0.05
Fluoxastrobin	ug/L	258.94	45
Glyphosate	ug/L	738.75	700
Imidacloprid	ug/L	50.37	0.01
Prothioconazole	ug/L	54.77	5.3
Tebuconazole	ug/L	395.54	11
Thiabendazole	ug/L	5042.62	42
Thiamethoxam	ug/L	6061.88	0.74
Selenium	ug/L	29.26	30
Ammonia	mg/L	570.20	
BOD	mg/L	9640.00	
Nitrate (as N)	mg/L	0.22	
Nitrite (as N)	mg/L	0.05	
Phosphorus (as P)	mg/L	356.40	
TKN	mg/L	774.20	
pH	SU	5.94	
Total Organic Carbon	mg/L	4074.00	
TSS	mg/L	327.20	

# Permitting and Pesticides

- ▶ Facility and representatives have treated wastewater
  - ▶ Treatment done through clarification, sand filtration, and carbon filtration
  - ▶ 49 million gallons treated so far out of 150 MG

Pollutant	Unit	Untreated Concentration	Treated Concentration
Abamectin	ug/L	312.00	8.20
Azoxystrobin	ug/L	97.73	0.68
Chlorantraniliprole	ug/L	483.60	32.00
Clothianidin	ug/L	9883.69	Not detected
Fluoxastrobin	ug/L	258.94	3.70
Glyphosate	ug/L	738.75	Not detected
Imidacloprid	ug/L	50.37	Not detected
Prothioconazole	ug/L	54.77	0.34
Tebuconazole	ug/L	395.54	2.80
Thiabendazole	ug/L	5042.62	0.98
Thiamethoxam	ug/L	6061.88	0.12
Selenium	ug/L	29.26	< 0.1 mg/L
Ammonia	mg/L	570.20	471.00
BOD	mg/L	9640.00	<0.1 mg/L
pH	SU	5.94	8.10



# Permitting and Pesticides

- ▶ NDEE is conducting at a minimum weekly inspections
- ▶ Sampling of groundwater, surface water, and nearby wells
- ▶ Air sampling and dust sampling



# Permitting and Pesticides

- ▶ How do we get rid of wastewater?
- ▶ NDEE investigated surface discharge potential
  - ▶ Small tributaries considered as well as piping it 14 miles to a larger river
  - ▶ Ammonia and many pesticides too high, needed other forms of treatment
  - ▶ Facility and representatives have taken this option off the table
- ▶ Existing NPDES permit needed to be modified - disposal through land app
  - ▶ Land application of treated wastewater permitted - BMP plans
    - ▶ Land application must be done at agronomic rate, increased setbacks
    - ▶ Sites tested for existing pesticide concentrations
    - ▶ Pesticides applied at 10-20% (one at 50%) of EPA approved treatment rate for corn
  - ▶ No wastewater may be added to lagoons without NDEE approval
  - ▶ No surface discharge allowed
  - ▶ Permit was issued 7/1/2022



# Permitting and Pesticides

- ▶ Facility had existing storm water permit, did not account for pesticides
  - ▶ Weather has been dry, no SW data
- ▶ NDEE issued individual storm water permit with site-specific requirements
  - ▶ SWPPP needs to be updated, increased monitoring and inspections
  - ▶ Used ISW general permit as a guide
  - ▶ Corrective measure and AIM added
  - ▶ Permit issued 1/1/2023
  - ▶ Storm water benchmarks are stringent

Parameter	Benchmark	Source of Limit
Abamectin	0.17 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Acute
Azoxystrobin	44 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Chlorantraniliprole	3.02 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Clothianidin	0.05 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Fluoxastrobin	45 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Glyphosate	700 µg/L (0.7 mg/L) <sup>(a)</sup>	NDEE Title 117 PDW
Imidacloprid	0.01 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Metalaxyl/Mefenoxam	1200 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Prothioconazole	5.3 µg/L <sup>(a)</sup>	EPA Ecological Non-Vascular Plant Acute
Sedaxane	650 µg/L <sup>(a)</sup>	EPA Human Health Chronic
Tebuconazole	11 µg/L <sup>(a)</sup>	EPA Ecological Fish Chronic
Thiabendazole	42 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Thiamethoxam	0.74 µg/L <sup>(a)</sup>	EPA Ecological Invertebrate Chronic
Whole Effluent Acute Toxicity - Ceriodaphnia sp	1.0 TUa	NDEE Title 117 Water Quality
Whole Effluent Acute Toxicity - Pimephales promelas	1.0 TUa	NDEE Title 117 Water Quality

# Questions/Comments?

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