



# IOWA DEPARTMENT OF NATURAL RESOURCES

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LEADING IOWANS IN CARING FOR OUR NATURAL RESOURCES

# Iowa's Antidegradation Policy

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# Topics

- All about Antideg (what it is, history, current status)
- Where does it apply?
- What is required?
- FAQs
- Questions (anytime)

# Antideg - What is it?

- What is Antideg?
  - Antideg = Antidegradation
  - A policy required in state (and federal) water quality standards to protect waters from degradation
  - “degradation” = “a decline in the chemical, physical or biological conditions of a surface water as measured on a pollutant-by-pollutant basis”
- The third component of water quality standards
  - Designated Uses
  - Water Quality Criteria (to protect the designated uses)
  - Antideg

# Antideg (a “brief” history)

- 1965 - Water Quality Act of 1965 requires states to establish and enforce water quality standards for interstate waters
- 1966 - State of Iowa issues first water quality and effluent standards
- 1968 - Secretary of the Interior Stewart L. Udall issues “non-degradation” statement
- 1971 - Non-degradation statement is incorporated into Iowa’s water quality standards
- 1972 - The Clean Water Act
- 1975 - Antidegradation is included with EPA’s first water quality standards regulations
- 1977 - Iowa replaces non-degradation statement with antidegradation policy
- 1983 - EPA promulgates federal antidegradation policy in its current form
- ~1985 to 1990 - Iowa modifies antidegradation policy
- 2010 - Iowa incorporates (and EPA approves) current antidegradation rule and **implementation procedure** into State water quality standards

42 YEARS

# Current Status

- The policy language has remained substantially the same
  - 1968: Maintenance of “waters whose existing quality is better than the established standards” at their existing quality
  - Today: “Where the quality of waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained...”
  - 1968: Potential lowering of water quality where “justifiable as a result of necessary economic or social development”
  - Today: “...unless...allowing lower water quality is necessary to accommodate important economic or social development...”

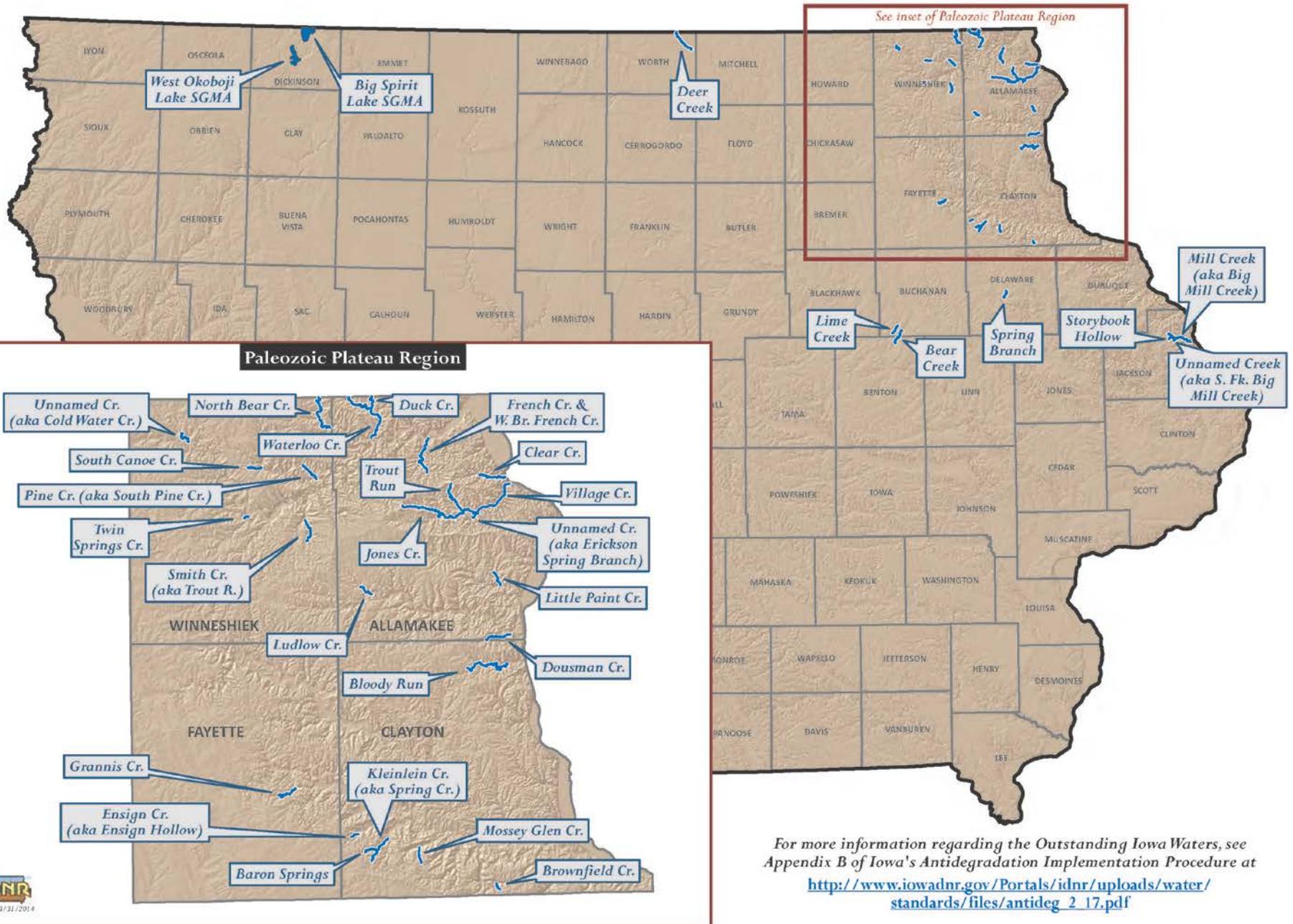
# Current Status

- Implementation has dramatically changed
  - Prior to 2010: Only certain water bodies singled out as high quality (mainly cold water trout streams)
  - Today: Current policy applies to all water bodies where quality is better than standards
  - Prior to 2010: Identifiable instances of implementation rare to non-existent
  - Today: Widespread application to all surface waters, with special protection afforded to Outstanding Iowa Waters

# Outstanding Iowa Waters

- Singled out for special protection
  - New sources of pollution generally prohibited
    - Unless they serve to “enhance the value, quality, or use” of the water AND
    - Non-degrading alternatives are not available

# Outstanding Iowa Waters



For more information regarding the Outstanding Iowa Waters, see Appendix B of Iowa's Antidegradation Implementation Procedure at [http://www.iowadnr.gov/Portals/idnr/uploads/water/standards/files/antideg\\_2\\_17.pdf](http://www.iowadnr.gov/Portals/idnr/uploads/water/standards/files/antideg_2_17.pdf)

# Where Does it Apply?

- Any “regulated activity” where a new or increased amount of a “pollutant of concern” will be discharged to a surface water
- Where it does not apply:
  - Actions that will result in neither an increase in in-stream concentration or mass for ANY pollutant of concern
  - Treatment added to a previously unpermitted discharge (e.g., unsewered communities) or newly discovered existing discharges
  - Actions within permitted treatment capacity

# Where Does it Apply (Specifically)?

- Operations
  - Chemical additions/changes
  - Significant Industrial Contributor Treatment Agreements
- Construction
  - Increases in design loadings
  - New chemical treatment
- Effluent limits adjustments
  - Increases in effluent limits
- New discharges
  - New facilities or outfalls
  - Relocation of outfalls

# Design Capacity

## Design Capacity

### Design: 1

The design capacity for the treatment works is specified in Construction Permit Number 2012-0366S, issued June 1, 2012.

The treatment plant is designed to treat:

- \* An average dry weather (ADW) flow of 0.1310 Million Gallons Per Day (MGD).
- \* An average wet weather (AWW) flow of 0.3000 Million Gallons Per Day (MGD).
- \* A maximum wet weather (MWW) flow of 0.4390 Million Gallons Per Day (MGD).
- \* A design 5-day biochemical oxygen demand (BOD5) load of 262.0 lbs/day.
- \* A design Total Kjeldahl Nitrogen (TKN) load of 45.00 lbs/day.

Operator Certification Type/Grade: WW/II

Wastes in such volumes or quantities as to exceed the design capacity of the treatment works or reduce the effluent quality below that specified in the operation permit of the treatment works are considered to be a waste which interferes with the operation or performance of the treatment works and are prohibited by rule IAC 567-62.1(7).

# Permit Limits

<i>Outfall: 001 Effective Dates: 08/01/2013 to 07/31/2018</i>				
<u>Parameter</u>	<u>Season</u>	<u>Limit Type</u>	<u>Limits</u>	
<b>AMMONIA NITROGEN (N)</b>				
	JAN	30 Day Average	11.9 MG/L	20.3 LBS/DAY
	JAN	Daily Maximum	20.8 MG/L	50.8 LBS/DAY
	FEB	30 Day Average	9.5 MG/L	22.2 LBS/DAY
	FEB	Daily Maximum	9.5 MG/L	22.2 LBS/DAY
	MAR	30 Day Average	4.7 MG/L	10.6 LBS/DAY
	MAR	Daily Maximum	4.7 MG/L	10.6 LBS/DAY
	APR	30 Day Average	4.4 MG/L	7.8 LBS/DAY
	APR	Daily Maximum	5.2 MG/L	12.3 LBS/DAY
	MAY	30 Day Average	3.7 MG/L	6.7 LBS/DAY
	MAY	Daily Maximum	3.7 MG/L	8.6 LBS/DAY
	JUN	30 Day Average	2.6 MG/L	4.7 LBS/DAY
	JUN	Daily Maximum	3.7 MG/L	8.6 LBS/DAY
	JUL	30 Day Average	2.6 MG/L	4.4 LBS/DAY
	JUL	Daily Maximum	3.7 MG/L	8.6 LBS/DAY
	AUG	30 Day Average	2.4 MG/L	4.0 LBS/DAY
	AUG	Daily Maximum	3.1 MG/L	7.1 LBS/DAY
	SEP	30 Day Average	2.9 MG/L	5.3 LBS/DAY
	SEP	Daily Maximum	3.3 MG/L	7.3 LBS/DAY
	OCT	30 Day Average	3.3 MG/L	7.3 LBS/DAY
	OCT	Daily Maximum	3.3 MG/L	7.3 LBS/DAY
	NOV	30 Day Average	3.2 MG/L	7.2 LBS/DAY
	NOV	Daily Maximum	3.2 MG/L	7.2 LBS/DAY
	DEC	30 Day Average	4.5 MG/L	10.4 LBS/DAY
	DEC	Daily Maximum	4.5 MG/L	10.4 LBS/DAY

# What is Required?

- Antideg Alternatives Analysis
  - Comparison of alternatives
    - Base
    - Less-degrading
    - Non-degrading
  - Least degrading reasonable alternative
    - Practicable
    - Economically efficient
    - Affordable
  - Public notice (posted & published locally) with 30-day comment period
  - Copy of notice to **applicable** agencies & interested parties

# Conventional vs. Antideg Alternatives Analysis

	Conventional Evaluation	Antidegradation Analysis
Constraints	Practicability, cost, affordability	Practicability, cost, affordability
Goal	Meet NPDES effluent limits	Minimize pollutant loading
Criteria	Most cost-effective alternative	Least degrading reasonable alternative

# What is Required?

- Temporary and Limited Determination
  - How long?
  - How much?
  - What pollutants?
  - Long-term water quality benefits?
  - Risk of violating water quality standards?
  - Potential of long-term effects?
- Examples
  - Temporary chemical additions
  - Pilot tests

# Least Degrading Reasonable Alternative

- A Reasonable Alternative is:
  - Practicable
  - Economically Efficient
  - Affordable

# Is the Alternative Practicable?

- Is it technically feasible?
  - Can it reliably meet effluent or operation permit limitations?
  - Is there a place to put it?
  - Secondary impacts
    - Treatment byproducts/residuals disposal
- Examples:
  - Treatment by membrane filtration without a viable means to dispose of reject stream
  - Wastewater with characteristics unsuitable for land application
  - Site constraints (not enough area available at a given location)
- In general, land availability at one site alone is not enough to rule out a treatment or disposal method though

# Is the Alternative Economically Efficient?

- How much does it cost in comparison to the base cost of pollution control?
  - Economic Efficiency =  $\frac{\text{Alternative Cost}}{\text{Base Cost}}$
  - Base cost = cost to protect existing uses and achieve highest statutory and regulatory requirements
  - In other words...the cost of compliance with your discharge/operational permit
  - Alternatives less than 115% of the base cost are presumed to be economically efficient
  - Alternatives greater than 115% should be considered if implementation will produce a substantial improvement in the discharge
- Examples
  - Treatment system and surface discharge = \$0.5M. Land application (non-degrading) = \$1M (200%). Land application is not economically efficient.
  - If land application alternative = \$0.575M (115%)? \$0.585M (117%)?

# Is the Alternative Affordable?

- Affordability evaluation not required for alternatives which are not practicable or economically efficient
- No universal procedure
- Guidance
  - EPA Interim Economic Guidance for Water Quality Standards
  - Disadvantaged community rule
- Criteria (non-binding)
  - Public
    - Household cost/MHI
    - Unemployment rate
    - Bond rating
  - Private
    - Profit
    - Liquidity
    - Solvency
    - Leverage

# FAQs

- Pollutants of Concern
  - What is a pollutant of concern?
    - “pollutants which are reasonably expected to be present in the discharge and may reasonably be expected to negatively affect the beneficial uses of the receiving water”
    - All things that have a numeric water quality criterion
      - Ammonia, chloride, sulfate, E. coli, metals, etc., etc.
    - Some things that do not have criteria (but are known to have potential effects)
      - Total nitrogen, phosphorus, proprietary chemicals with known toxicity (e.g., polymers)
  - What is not a pollutant of concern?

# FAQs

- What is a regulated activity?
  - “any activity that requires a permit or a water quality certification pursuant to the following federal laws: 1) CWA § 402 NPDES permits, 2) CWA § 404 dredge and fill permits, 3) any activity requiring a CWA § 401 certification.
  - Basically, anything covered under the Clean Water Act
  - Mostly...point source discharges covered under an NPDES permit

# FAQs

- Engineers
  - Do I need one?
    - Required if the project requires a construction permit
    - Otherwise, no....but...
  - Do I want one?



# FAQs

- Treatment agreements
  - Does a treatment agreement require antideg?
    - Compatible pollutants only within the design capacity....No
    - Incompatible pollutants...Yes
    - Compatible pollutants only above the design capacity...Yes+
  - Does a change in a treatment agreement require antideg?
    - Sometimes...see above
  - Who is responsible for writing the analysis?
    - DNR does not care (as long as it is a good analysis)

# FAQs

- Treatment Chemicals
  - Do new chemical additions require antideg?
    - Most of the time...yes
  - Do changes in chemical types require antideg?
    - Most of the time...yes
    - No if the chemicals are identical (change in brand name/supplier)

# FAQs

- Examples
  - Do we have any?
    - A few posted on the website
    - Previously approved analyses are public record

# FAQs

- NPDES Permit Renewal
  - Does renewal of my NPDES permit require antideg?
    - Only if there is a change in the design basis or less stringent limits are proposed
    - Mixing zone studies
    - Site specific data

# FAQs

- Contacts/resources
  - Who should I talk to about antideg?
    - Your NPDES permit writer
    - Your DNR construction permit reviewer
    - Me
  - Where can I go to find out more?
    - <http://www.iowadnr.gov/InsideDNR/RegulatoryWater/WaterQualityStandards/Antidegradation.aspx>

# Questions?

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