NEW AMMONIA CRITERIA IMPLEMENTATION

Zachary Carroll, PhD, P.E.
Engineer Supervisor
DEQ Office of Water Quality

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PERMIT REMINDERS

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SIGNATURES

- **PLEASE DO NOT SEND PERMIT DOCUMENTS WITH TYPED SIGNATURES**
- **PLEASE USE ONE OF THE FOLLOWING:**
  - Hand signed signature
  - Digitally certified signature
  - Electronic signature (when available)
    - No new approvals for ePortal
    - SEEK applications are coming soon

Print name (First and Last)

Responsible Official

Signature

Print name (First and ast)

Responsible Official

Signature

Responsible Official

Digitally signed by: Responsible Official
DN: CN = Responsible Official email = noemail@noemail.com C = US O = test OU = test
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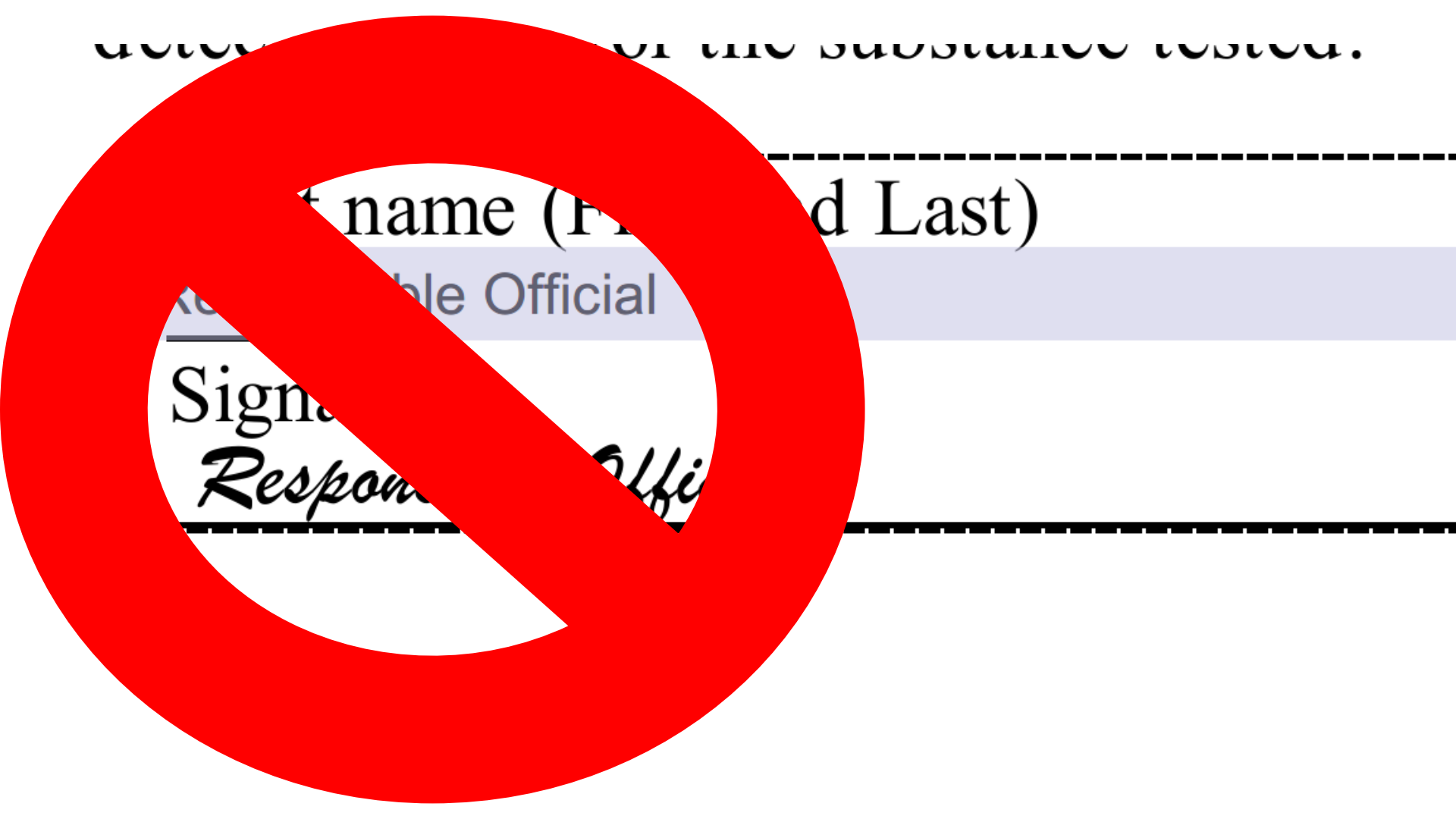

SEEK IS COMING

seek
Data Management System

DATA MIGRATION IN PROGRESS

- Permit data only
- Old documents will remain on PDS
- New documents will go in SEEK
- **Invoicing will follow soon**

APPLICATIONS WILL BE AVAILABLE

- Renewal, new, modification, construction

SEEK IS COMING

seek
Data Management System

SITES ARE ALREADY SET UP

- Can claim sites anytime
- Can create accounts
  - Make sure to remember your password and security questions
  - If you get locked out of your account you have to submit a help ticket

SEEK IS COMING

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Data Management System

INSTRUCTION VIDEOS AVAILABLE

- https://www.youtube.com/watch?v=9nTtiBOcGdo&list=PL-_Kh5gezDm_d5SI1Qy5Y8JS5lohmnrt_
- Or search for Arkansas Energy and Environment SEEK videos

2025 CRITERIA REVISION

ARKANSAS
ENERGY & ENVIRONMENT

Pollution Control and Ecology Commission # 014.00-002

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

Part 21

RULE ESTABLISHING WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF ARKANSAS

Approved by the Arkansas Pollution Control and Ecology Commission
April 25, 2025

EXHIBIT C

8 CAR PART 21 AKA RULE 2

RULES HAVE NOW BEEN CODIFIED

- Code of Arkansas Rules Part 21 is what used to be Rule 2
- Still contains the state water quality standards

APPROVED BY EPA

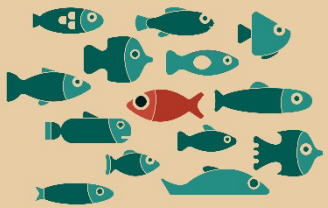
- October 2025
- New criteria are effective for Clean Water Act purposes

tables.

Temperature and pH-Dependent Values of the CCC (Chronic Criterion Magnitude)

	Temperature (°C)																							
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.2	1.1
6.6	4.8	4.5	4.3	4.0	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0
7.0	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	0.99
7.1	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95
7.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.9
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.97	0.91	0.85
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.9	0.85	0.79
7.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.83	0.78	0.73
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98	0.92	0.86	0.81	0.76	0.71	0.67
7.7	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.6
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.5	0.47
8.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.6	0.56	0.53	0.5	0.44	0.44	0.41
8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.4	0.38	0.35
8.2	1.3	1.2	1.2	1.1	1.0	0.96	0.9	0.84	0.79	0.74	0.7	0.65	0.61	0.57	0.54	0.5	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.3
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.4	0.38	0.35	0.33	0.31	0.29	0.27	0.26
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.5	0.47	0.44	0.41	0.39	0.36	0.34	0.32	0.3	0.28	0.26	0.25	0.23	0.22
8.5	0.8	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.4	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.22	0.21	0.2	0.18
8.6	0.68	0.64	0.6	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.21	0.2	0.19	0.18	0.16	0.15
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.3	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13
8.8	0.49	0.46	0.43	0.4	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.2	0.19	0.17	0.16	0.15	0.14	0.13	0.13	0.12	0.11
8.9	0.42	0.39	0.37	0.34	0.32	0.3	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.1	0.09
9.0	0.36	0.34	0.32	0.3	0.28	0.26	0.24	0.23	0.21	0.2	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.1	0.09	0.09	0.08

CRITERIA CHANGES



- **UNIFORM CRITERIA FOR ALL STAGES OF FISH LIFE**

  …but the temperature is based on fish early life:
  - 14°C when fish early life absent
  - 29°C-32°C, depending on ecoregion, when fish early life present

- **CRITERIA ARE MORE STRINGENT**

  50-55% lower than the current ammonia criteria

- **CRITERIA AT 1°C INCREMENTS**

IMPLEMENTATION

PARTIALLY SPECIFIED IN THE CRITERIA:

- 7 day avg./daily max.
- Temperature to be used
- 2.5x the value in the table

(3) The highest four-day average within a 30-day period should not exceed 2.5 times the chronic values shown above.

(b) For permitted discharges, the daily maximum or seven-day average permit limit shall be calculated using the four-day average value described above as an instream value, after mixing and based on a season when fish early life stages are present and a season when fish early life stages are absent. Temperature values used will be 14° C when fish early life stages are absent and the ecoregion temperature standard for the season when fish early life stages are present. The pH values will be the ecoregion mean value from least-disturbed stream data.

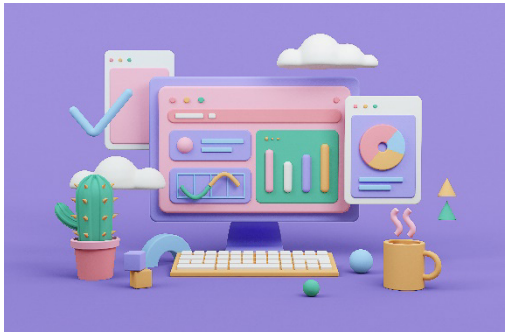
ECOREGION ASSUMPTIONS

Fish Early Life Stages Present (April - October)		
Ecoregion	**T (°C)**	**pH**
Arkansas River	32	7.6
Arkansas River Valley	31	6.7
Boston Mountains	31	6.9
Delta	30	7.1
Gulf Coastal Plains	30	6.6
Ouachita Mountains	30	7.1
Ouachita River (L. Mo. to Mouth)	32	6.7
Ozark Highlands	29	7.6
Red River	32	7.5
White River (Dam #10 Mouth)	32	7.7

STATISTICAL ASSUMPTIONS

7-DAY AVG. OR DAILY MAX. LIMITS

- Specified in criteria
- 7-day avg. (POTW) or daily max. (non-POTW) limit based on 2.5 × chronic criteria
- Assumed to be approximately representative of the 4-day avg. concentration in the stream



IMPLEMENTATION

MONTHLY STATISTICAL ASSUMPTIONS

- Not specified in criteria
- No change from current implementation

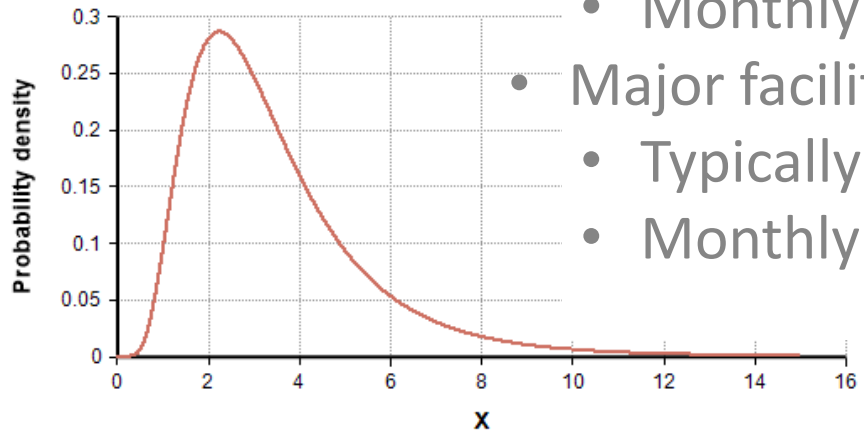
AQUATIC LIFE PRESENCE/ABSENCE

- Not specified in criteria
- No change from current implementation

STATISTICAL ASSUMPTIONS

MONTHLY AVERAGE

- Chronic criteria: 30-day average in-stream
- Minor facilities (<1 MGD)
  - Typically sample 1/quarter to 3/month
  - Monthly Avg. limit = 2.5 × chronic criteria
- Major facilities (>=1 MGD)
  - Typically sample 1/week to 1/day
  - Monthly Avg. limit = chronic criteria



IN-STREAM CRITERIA

Minor Facilities				
Fish Early Life Stages Present - Critical Season (April - October), mg/L				
Ecoregion	Temperature	pH	4-day average	30-day average
Arkansas River	32	7.6	1.48	1.48
Arkansas Valley	31	6.7	2.50	2.50
Boston Mountains	31	6.9	2.40	2.40
Mississippi Alluvial Plain (Least-Altered)	30	7.1	2.38	2.38
Mississippi Alluvial Plain (Channel-Altered)	32	7.1	2.08	2.08
South Central Plains	30	6.6	2.75	2.75
Ouachita Mountains	30	7.1	2.38	2.38
Ouachita River (L. MO to Mouth)	32	6.7	2.38	2.38
Ozark Highlands	29	7.6	1.78	1.78
St. Francis River	32	7.2	1.98	1.98
Red River	32	7.5	1.60	1.60
White River (Dam #1 to Mouth)	32	7.7	1.33	1.33

Major Facilities				
Fish Early Life Stages Present - Critical Season (April-October), mg/L				
Ecoregion	Temperature	pH	4-day average	30-day average
Arkansas River	32	7.6	1.48	0.59
Arkansas Valley	31	6.7	2.50	1.0
Boston Mountains	31	6.9	2.40	0.96
Mississippi Alluvial Plain (Least-Altered)	30	7.1	2.38	0.95
Mississippi Alluvial Plain (Channel-Altered)	32	7.1	2.08	0.83
South Central Plains	30	6.6	2.75	1.1
Ouachita Mountains	30	7.1	2.38	0.95
Ouachita River (L. MO to Mouth)	32	6.7	2.38	0.95
Ozark Highlands	29	7.6	1.78	0.71
St. Francis River	32	7.2	1.98	0.79
Red River	32	7.5	1.60	0.64
White River (Dam #1 to Mouth)	32	7.7	1.33	0.53

IN-STREAM CRITERIA

	Major	Minor
April-October	0.53 to 1.1 mg/l	1.33 to 2.75 mg/l
November-March	1.7 to 3.0 mg/l	4.25 to 7.75 mg/l

AQUATIC LIFE DESIGNATION

PERENNIAL (YEAR-ROUND) AQUATIC LIFE

- Watershed ≥ 10 square miles OR
- Discharge ≥ 1 cfs (0.65 MGD)

SEASONAL (NOV-APR) AQUATIC LIFE

- Watershed < 10 square miles & discharge < 1 cfs (unless field verification shows otherwise)
- No aquatic life support from May through October due to lack of flow
- Ammonia toxicity criteria do not apply when aquatic life is not supported

IMPLEMENTATION

IN-STREAM MIXING

- No change for large streams and/or large discharges
- Seasonal fishery flow is now Nov-Apr for small streams/small discharges

IN-STREAM MIXING

NEW

- **SMALL STREAMS (<100 CFS)**
  - 67% of the annual 7-day 10-year low flow
  - 67% of the Nov-Apr 7-day 10-year low flow
    - Minimum of 1 cfs total flow (background flow + discharge flow)
  - Background ammonia concentration
- **LARGE RIVERS (>= 100 CFS)**
  - 25% of the annual 7-day 10-year low flow
  - 25% of the Nov-Apr 7-day 10-year low flow
  - Background ammonia concentration

IN-STREAM MIXING

SEASONAL (NOV-APR) AQUATIC LIFE FLOW

- From definition of “critical flow” in Rule 2
- Consistent with dissolved oxygen model flow
- 1 cfs minus design flow
  - (1 cfs = 0.646 MGD)

PERMIT LIMITS

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WILL MY LIMIT CHANGE?

SEVERAL FACTORS

- Facility design flow
- Receiving stream critical flow
- Receiving stream watershed area
- Ecoregion (area of the state)
- Proximity of other facilities

CHECK YOUR FACILITY ON PDS

- **PERMIT DATA SYSTEM (PDS)**

  https://www.adeq.state.ar.us/home/pdssql/pds.aspx

- **LOOK FOR THE "WQMP" FILE**
  - In the "View Permit Information" section
  - Might be called "WQMP Summary" or "WQMP Update"
  - Table showing how the ammonia limits were determined

WILL MY LIMIT CHANGE?

SEVERAL FACTORS IN AMMONIA LIMITS

- Dissolved oxygen criteria (no change proposed)
- Aquatic life support (no change proposed)
- Seasonal fishery flow use (changing)
- Toxicity criteria (changing)

Chronic Toxicity Criteria vs. D.O. Model Limits

	Monthly Average, mg/l		**Permit Limits**	7-Day Average, mg/l		**Permit Limits**
Month	Toxicity limit	D.O. limit		Toxicity limit	D.O. limit	
April	5.60	14	5.60	5.60	21	5.60
May - October	no fishery	7	7.00	no fishery	10.5	10.50
November - March	16.70	14	14.00	16.70	21	16.70

FACILITY DESIGN FLOW

4 BROAD CATEGORIES

- Major ≥1 MGD
- Minor ≥1 cfs (≥ 0.646 MGD)
- Minor 0.3 to 0.646 MGD (approximately)
- Minor <0.3 MGD (approximately)

MAJOR FACILITIES (≥1 MGD)

LARGE RECEIVING STREAM

- Change (if any) will depend on flow ratio
- If you already have a limit expect it to be reduced by about 55%
- Discharges that are more than about 1% of the receiving stream critical flow are likely to require limits
- Certain areas have a lot of discharges in a short section of the stream – not been evaluated yet

MAJOR FACILITIES (≥1 MGD)

SMALL RECEIVING STREAM

- Less change in limits
- Toxicity-based limit reduced by approximately 55%
- Most large discharges to small streams currently have ammonia limits based on the dissolved oxygen model
- Toxicity-based limit from new criteria will be compared to the existing DO-based limit

MINOR ≥1 CFS (≥0.646 MGD)

LARGE RECEIVING STREAM

- No change expected in most cases

SMALL RECEIVING STREAM

- Expect the toxicity-based limit to be reduced by about 55%
- Some facilities may currently have a more stringent limit from the dissolved oxygen model
  - less change expected in this case

MINOR <1 CFS (<0.646 MGD)

LARGE RECEIVING STREAM

- No change expected in most cases

SMALL RECEIVING STREAM

- Watershed <10 square miles
  - May-Oct no aquatic life designation
  - Nov-Apr seasonal flow now applicable
    - Most facilities 0.3 MGD or smaller will see no change
    - Scaling change for 0.3 MGD to 0.646 MGD

MINOR <1 CFS (<0.646 MGD)

SMALL RECEIVING STREAM

- Watershed ≥10 square miles
  - May-Oct expect 55% reduction in toxicity-based limit
  - Nov-Apr seasonal flow now applicable
    - Most facilities 0.3 MGD or smaller will see no change
    - Scaling change for 0.3 MGD to 0.646 MGD

SUMMARY OF EXPECTED CHANGES

The below table is a general guideline; there may be some situations where other factors cause changes in ammonia limits

	Large Stream	Small Stream >10 sq mi		Small Stream <10 sq mi	
		May-Oct	Nov-Apr	May-Oct	Nov-Apr
Major and Minor ≥0.646	~55% Toxicity-based limit reduction. DO-based limit may be more stringent. Check the WQMP Summary.				
Minor 0.3 to 0.646 MGD	NC	~55% Tox. Reduction	??% Tox. Reduction	NC	??% Tox. Reduction
Minor <0.3 MGD	NC	~55% Tox. Reduction	NC	NC	NC

WQMP SUMMARY

If expecting a ~55% reduction in Toxicity-based limits, you can estimate the new limit

Chronic Toxicity Criteria vs. D.O. Model Limits						
	Monthly Average, mg/l		**Permit Limits**	7-Day Average, mg/l		**Permit Limits**
Month	Toxicity limit	D.O. limit		Toxicity limit	D.O. limit	
April	5.60	14	5.60	5.60	21	5.60
May - October	no fishery	7	7.00	no fishery	10.5	10.50
November - March	16.70	14	14.00	16.70	21	16.70

SPECIAL CASES

- Several dischargers in close proximity
- 0.3 MGD to 0.646 MGD design flow range

MINOR <1 CFS (<0.646 MGD)

- **SO IT'S BETTER FOR SMALL FACILITIES TO DISCHARGE TO A SMALLER STREAM?**
  - Watershed <10 square miles isn't designated for aquatic life May-Oct
  - Watershed ≥10 square miles is designated for aquatic life May-Oct, even if there's no water in the stream

IMPLEMENTATION TIMELINE

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IMPLEMENTATION TIMELINE

- **IMPLEMENTED IN NEXT* PERMIT RENEWAL**
  *Not redoing anything already updated in the Water Quality Management Plan (WQMP/208 Plan), even if the renewal isn't issued yet
- **SOME MODIFICATIONS**
  Only if the scope of the modification includes revising the ammonia limits (e.g. design flow or receiving stream change)

IMPLEMENTATION TIMELINE

- **RENEWALS ARE CURRENTLY BACKLOGGED**
- **3-YEAR SCHEDULE OF COMPLIANCE**
  - Standard schedule for most facilities
  - 3 years after the effective date of the renewal

QUESTIONS?

Zachary Carroll, PhD, P.E.
Engineer Supervisor
DEQ Office of Water Quality

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