

DISCLAIMER

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Hawaii Department of Health Functional Equivalent Discharge Strategy

Workshop #3

July 31, 2024

The mission of the Department of Health is to protect and improve the health and environment for all people in Hawai'i.



Agenda for Today

TIME	TOPIC
9:00 - 9:15am	Meeting Kickoff: Welcome and Objectives
9:15 - 9:35am	NPDES Permits Overview/Considerations (Individual and General)
9:35 - 10:00am	Establishing Effluent Limitations
10:00 - 10:40am	Tools to Assist Permittees with Compliance (compliance schedules, zones of mixing, variances)
10:40 - 10:55am	Open Forum – Other thoughts on permitting approaches
10:55 - 11:00am	Next Steps and Thank You
11:00 - 11:10am	“Hallway Chat” – open time for anyone to stay to chat for a few minutes with DOH and others

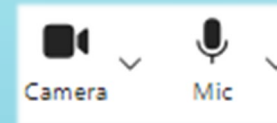
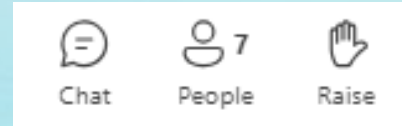
Meeting Approach and Ground Rules

- **Collaborative, Inclusive Environment**

- Be respectful and listen to others.
- No organizational or personal attacks.
- Meeting is not being recorded.
- Please ask questions as we proceed.

- **Active Participation Encouraged**

- Use “Raise Hand” button to indicate you would like to speak.
- Use “Chat” function with any questions or to share a comment.
- Turn on your camera if able and willing to do so when speaking.
- Mute your mic when not speaking.
- Please identify yourself when you speak.



Meeting Approach and Ground Rules

- **Helpful Mindsets**

- Share your experiences and wisdom.
- Be open-minded and solution-oriented.
- If clarification is needed, just ask for it!



This meeting is not being recorded

A misty, blue-toned landscape of a lake and mountains. The scene is hazy, with soft light filtering through the fog. The water in the foreground is calm, reflecting the surrounding environment. The mountains in the background are partially obscured by the mist, creating a sense of depth and tranquility. The overall color palette is dominated by various shades of blue and teal, with some lighter tones where the mist is thicker.

Welcome and Objectives

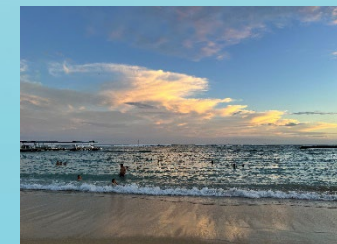


Welcome and Objectives

- Last meeting:
 - Water reuse of treated wastewater.
 - Groundwater protection approaches.
 - Nonpoint source water pollution control program.
- Today:
 - Discuss NPDES permitting conditions to reduce pollutant discharges, gain input to help determine permitting approach that will effectively control FE discharges and meet state and federal requirements.
- Overall, doing this work to protect aquatic life, human health, and other beneficial uses of State waters.



DELIBERATIVE



Overall Goals of Hawaii's FE Strategy

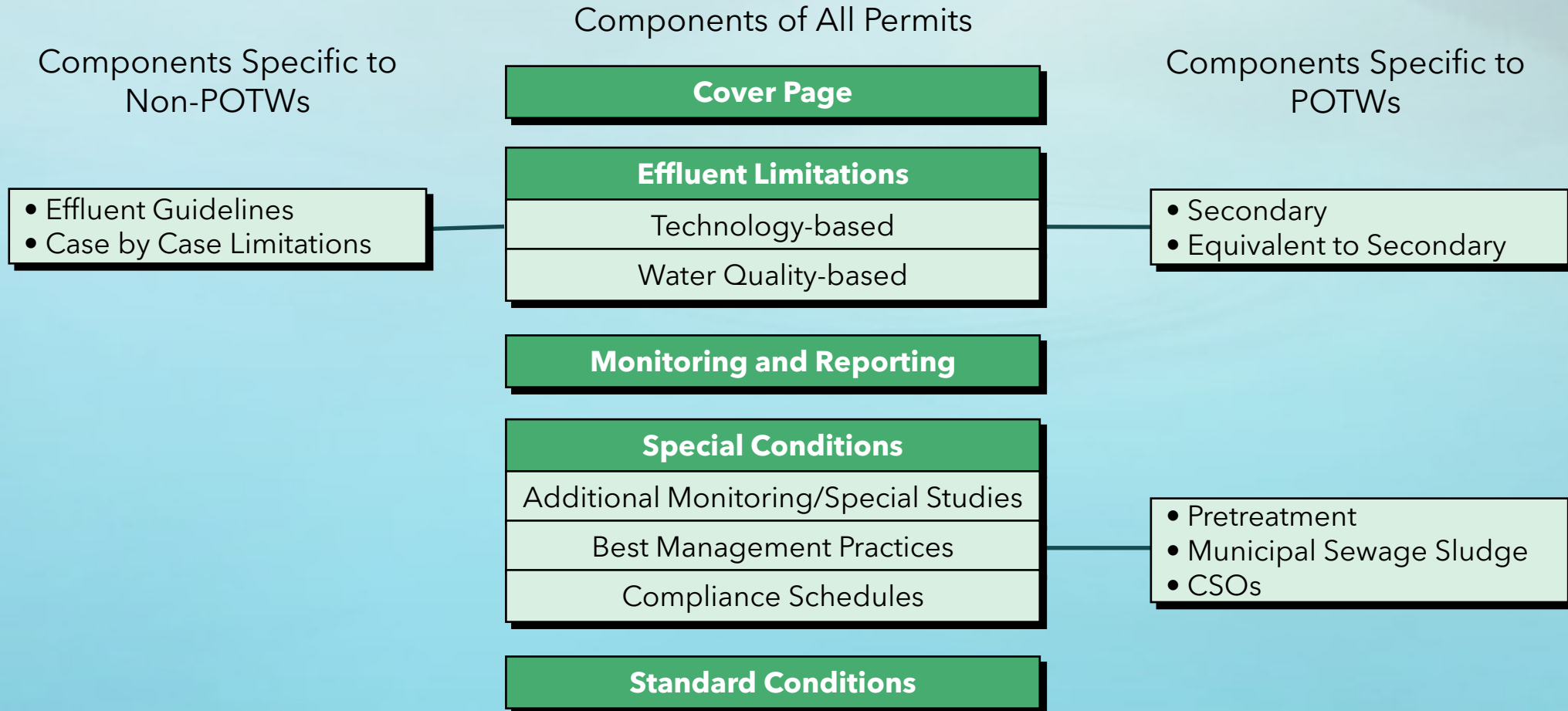


- Identify potentially affected facilities.
- Prioritize facilities for regulatory coverage.
- Develop permitting strategy that...
 - Acknowledges both general permits (for similar types of facilities) and individual permits may be needed.
 - Requires facilities to make the decision to seek permit coverage in accordance with the longstanding principles of the NPDES program.
 - Includes FE discharge determination criteria for applicability.
 - Creates regulatory certainty for potentially affected facilities.
 - Addresses the new FE requirement using DOH's current limited resources.
 - Creates cross-programmatic consistency between affected DOH programs regarding UIC, wastewater reuse, NPDES permits, OSDS approvals, etc.
 - Promotes “no discharge” alternatives, such as wastewater reuse.
- Determine what is needed to support the permitting strategy (e.g., revisions to statutes and rules, resources).



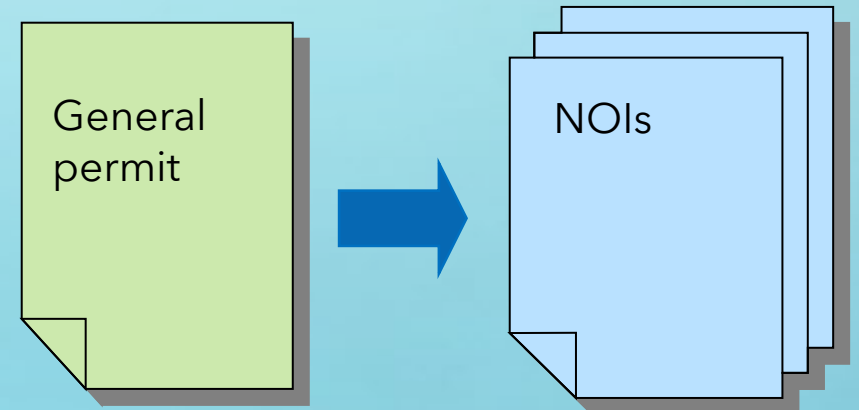
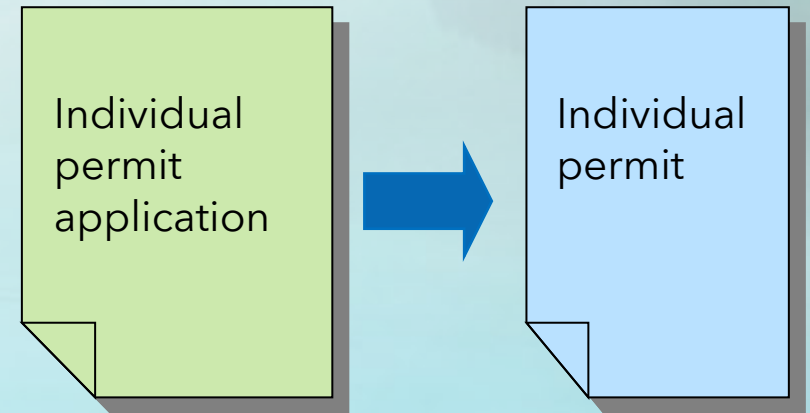
NPDES Permits Overview

Five Components of an NPDES Permit



Individual Permits vs General Permits

- Individual Permit
 - One application submitted for each permit issued
 - Appropriate where facility-specific permit conditions are needed
- General Permit [§ 122.28]
 - One permit issued and many Notices of Intent (NOIs) for coverage submitted
 - Appropriate where:
 - Multiple, similar sources within the same geographic area require permit coverage
 - Sources have similar discharges and would require the same or similar permit conditions



Individual Permits vs General Permits

- Individual Permit
 - Resource intensive
 - Responsive to site-specific situations
- General Permit [§ 122.28]
 - Can be very efficient on resources
 - Contains necessary controls (same 5 components as individual permits), such as:
 - Effluent limitations
 - Best management practices
 - Additional monitoring/special studies
 - Compliance schedules???



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Discussion Points

General Permits

- Questions/Comments?

Examples:

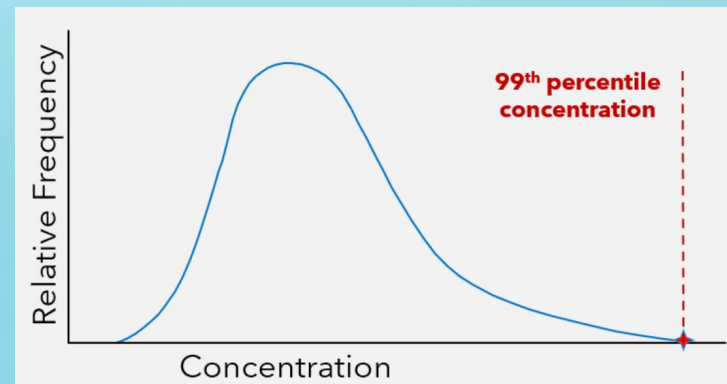
- General permits can take longer to develop, patience is necessary
 - Complexity will impact development/implementation timeline
- Not sure we can implement compliance schedules (will discuss later)
- Not sure how we would implement dilution under a general permit (will discuss later)
- Facilities that don't fall under a general permit, or who have had chronic compliance issues may be required to obtain an individual permit

Water Quality-Based Effluent Limitations

- Reasonable Potential Analysis (RPA)
 - Limitations must be established to control pollutants that are or may be discharged that will **cause**, have the reasonable **potential to cause**, or **contribute** to an excursion above any state water quality standard.
 - Must consider:
 - Existing controls on point and nonpoint sources of pollution
 - Variability on the pollutant in the effluent
 - Sensitivity of the species to WET testing
 - Dilution of the effluent in the receiving water



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Water Quality-Based Effluent Limitations

- RPA: Statistical Analysis
 - Calculates a projected maximum receiving water concentration after mixing under critical conditions.
 - If the projected maximum RW concentration exceeds applicable criteria, then there is reasonable potential and the pollutant must be controlled.
 - Numeric limits
 - Best management practices if numeric limits are impracticable, or otherwise necessary



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Water Quality-Based Effluent Limitations

- RPA Concerns:
 - Don't know fate and transport of pollutants
 - Don't know applicable dilution
- Impacts:
 - Can't accurately evaluate reasonable potential
 - Evaluate reasonable potential using incomplete data (i.e., dilution, pollutant concentrations at the point of discharge)
 - May result in overly stringent effluent limitations that require significant investment in infrastructure that may not actually be required to protect water quality



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Water Quality-Based Effluent Limitations

- RPA: Alternative Procedures (similar approach to how nutrients are evaluated already)?
 - Look at actual receiving water concentrations and compare to criteria
 - If RW is exceeding, look to see if the pollutant is present in the effluent
 - If the pollutant is present in the effluent, and the RW is exceeding criteria, we can conclude the discharge is contributing to an exceedance of water quality criteria
 - Accounts for:
 - Existing controls on point and nonpoint sources of pollution
 - Variability on the pollutant in the effluent
 - Dilution of the effluent in the receiving water
 - Fate and transport of the pollutant to some degree

Water Quality-Based Effluent Limitations

- Water Quality-based Effluent Limitations
 - Use a statistical process (toxic and some non-conventional pollutants) or direct application of criteria (e.g., pH, pathogens, nutrients)
 - May factor in dilution
- Dilution provides some regulatory flexibility if the receiving water has assimilative capacity
 - Results in higher effluent limitations
 - Increases potential for compliance
- Hawaii implements dilution through Zones of Mixing (ZOM) and Zones of Initial Dilution (ZID)

Water Quality-Based Effluent Limitations

- Nutrients may be a major compliance issue, particularly without dilution

Parameter	Open Coastal Water Limitation		UIC/Drinking Water Limitation	Sample Secondary WWTP Influent Geomean Concentration	Sample Secondary WWTP Effluent Geomean Concentration
	Annual Geometric Mean	Single Sample Maximum			
Total Nitrogen (µg/L)	110.00	180.00	None	25,954	15,787
Ammonia Nitrogen (µg/L)	2.00	5.00	None	16,242	7,772
Nitrate + Nitrite Nitrogen (µg/L)	3.50	10.00	10,000	236	4,668
Total Phosphorus (µg/L)	16.00	30.00	None	3,648	2,627
Turbidity (NTU)	0.20	0.50	5	81	3.4

Water Quality-Based Effluent Limitations

- Limits can be expressed as either concentration, loading, or both
- Example:
 - Concentration:
 - Maximum Daily Effluent Limit: 5 ug/L
 - Loading
 - Maximum Daily Effluent Limit = Concentration (mg/L) x Flow (MGD) x 8.34



$$= .005 \text{ mg/L} \times 5 \text{ MGD} \times 8.34 = 0.209 \text{ lbs/day}$$

Water Quality-Based Effluent Limitations

- Feasibility of Compliance
 - Site specific, but anticipate compliance issues for nutrients
 - Concentration vs Loading limitations
 - Loading may promote reuse as a compliance strategy
 - Any water distributed for reuse will not contribute to receiving water loading from the discharger
 - Loading will allow for greater concentration at point of discharge at any given time, but not in totality
 - May make sense for nutrients where day-to-day variations aren't impactful
 - May not be appropriate for toxic pollutants where acutely toxic conditions may occur

Water Quality-Based Effluent Limitations

Potential Discussion Points

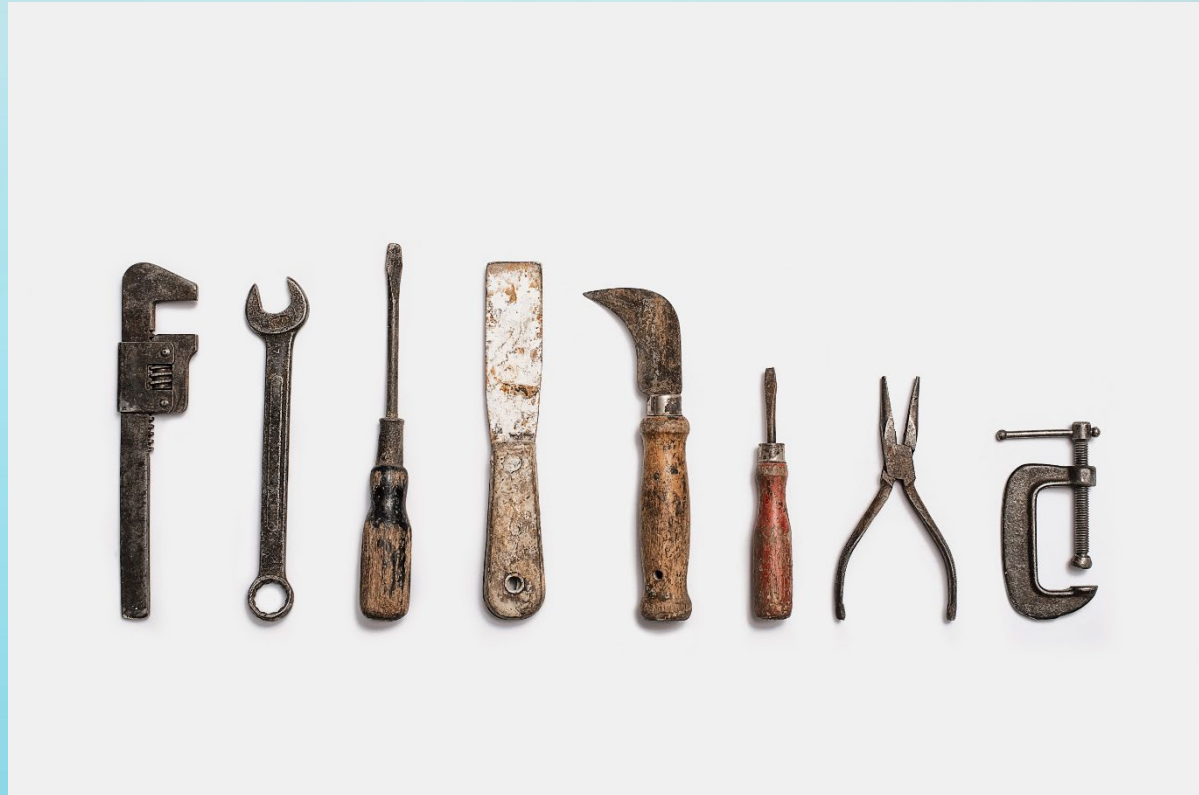
- How to perform an RPA
 - RW vs statistical method
 - How to account for unknowns
 - Dilution
 - Fate and transport
 - Point(s) of discharge
 - From facility
 - Entering the RW
 - Effluent data entering RW
- Concentration vs loading limits



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Potential Permitting Tools

- Compliance Schedules
- Zones of Mixing/Zones of Initial Dilution
- Variances



Compliance Schedules

- For the implementation of WQBELs that are based on new, revised, or newly interpreted WQS, where DOH determines that the permittee cannot immediately comply with the limits upon the effective date of the permit
- Permittees must provide specific information to demonstrate they are eligible for a compliance schedule
- Compliance schedules may be revised during future permitting efforts based on new information



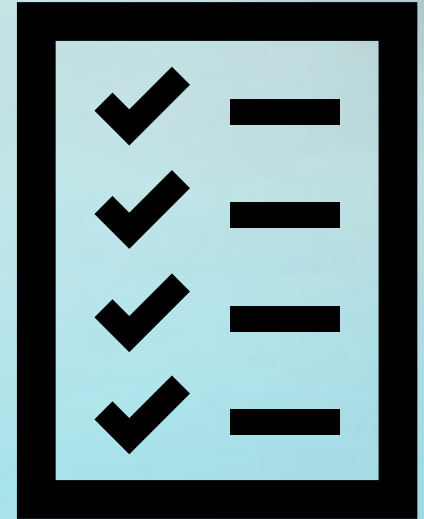
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Compliance Schedules

- Compliance Schedule Submittal Requirements:
 - Demonstration that additional time is necessary to comply with limit.
 - Designing and constructing facilities, implementing new or expanded programs, securing financing, implementation
 - Existing efforts to quantify pollutant concentrations, sources of pollutant, and source control efforts
 - Proposed schedule for additional source control measures or treatment
 - Current facility performance data
 - Can assist in development of an interim effluent limit
 - Demonstration that the compliance schedule is as short as possible
 - Additional information, as necessary
- If compliance schedule exceeds 1 year, need interim effluent limit

Compliance Schedules

- Compliance Schedule Requirements:
 - Hold at existing performance (or better)
 - Is as short as possible
 - Will result in compliance with final limits
 - Not applicable for pursuing other methods of compliance other than improving effluent quality
- If the compliance schedule is over 1 year:
 - Interim effluent limit
 - Annual reports
 - Chronologic steps (milestones) to achieve performance, with no more than 1 year between an actionable item (could be reporting on status)



Discussion Points

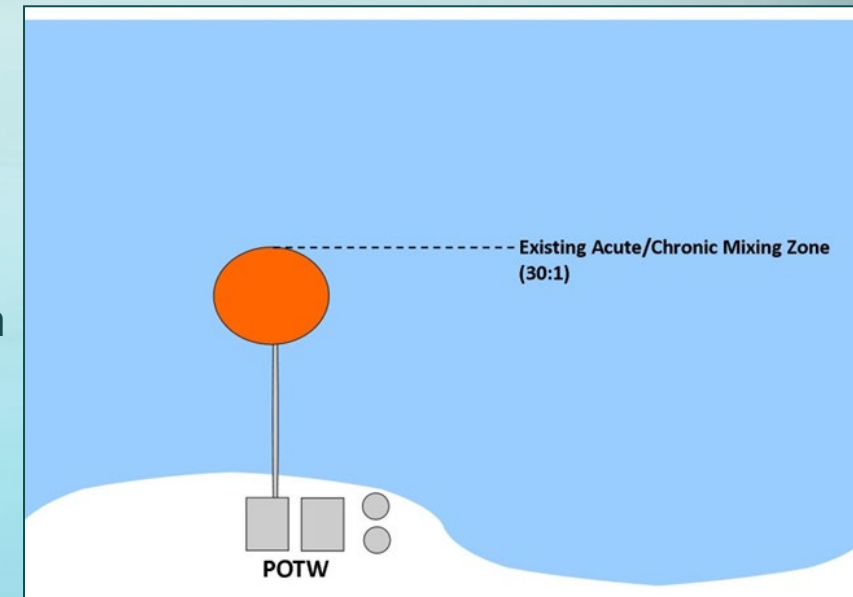
- Compliance Schedules
 - Questions/Comments?

Examples:

- Applicable to general permits?
- Reasonable for applicable types of discharges?
- Provides time for facilities that are close to install economically feasible alternatives to meet WQC-based limits
- How to determine “as soon as possible” for a category of dischargers?

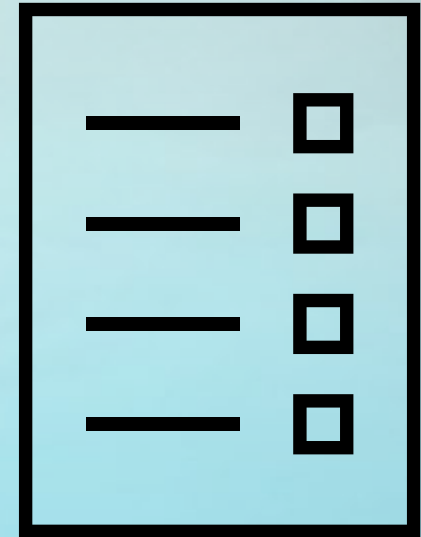
Zones of Mixing - ZOM

- Zone of Mixing (ZOM)
 - Applies only to WQBELs
 - Limited and defined area around outfalls to allow for the dilution before compliance with the applicable WQC is achieved
 - Representative of initial dilution, dispersion, and reactions from substances which may be considered to be pollutants
 - Average dilution is used using design dry weather flow or worst-case scenario
 - Considers: protected uses, existing natural conditions, character of the effluent, design of the outfall/diffuser system to achieve maximum dispersion
 - Cannot result in toxicity within the ZOM
 - Must be reappplied for every permit term with application
- Zone of Initial Dilution (ZID)
 - A subset of ZOMs that are applied to toxic pollutants
 - Limited in size to dilution under specified conditions
 - Initial dilution



Zones of Mixing - ZOM

- Application for a ZOM must clearly show:
 - The ZOM is in the public interest
 - The discharge does not substantially endanger human health/safety
 - Compliance w/o ZOM would produce hardships w/o equal or greater benefits to the public
 - The discharge does not violate standards
 - The discharge will not unreasonably interfere with uses of the waterbody
 - The discharge has received the best degree of treatment or control



Discussion Points

- Zones of Mixing

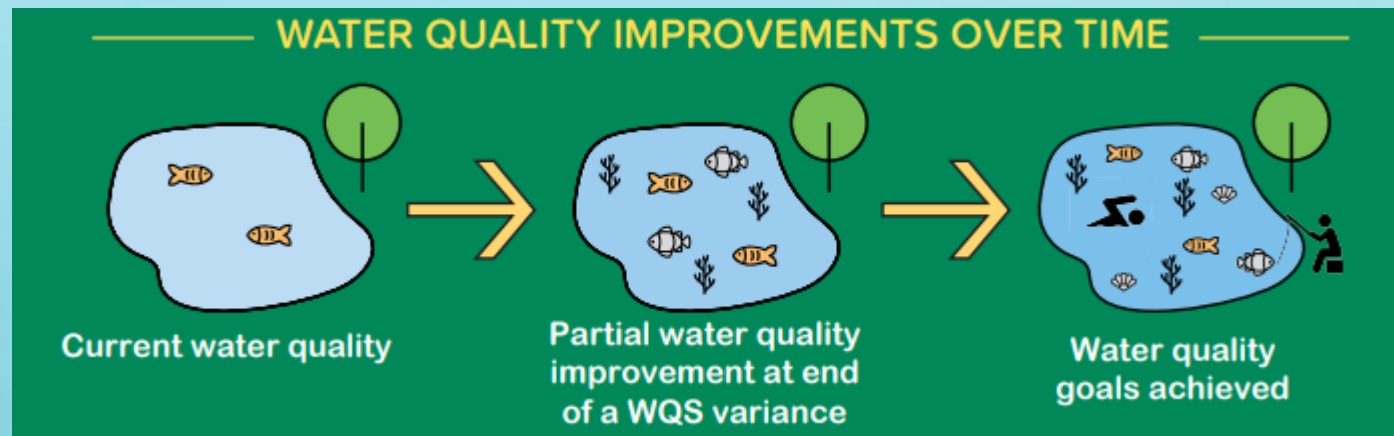
- Questions/Comments?

Examples:

- Need to know receiving water and be able to submit a ZOM request package
- May require modeling, which many of the potential permittees may not be familiar with or have sufficient resources to provide
- Not always available if there is not assimilative capacity or the designated use would be impacted (i.e., recreation)
- Provides regulatory flexibility where all necessary information can be provided, and the receiving water has assimilative capacity

Variations

- A time-limited use/criterion for a specific pollutant, from a specific source or waterbody, that is reflective of the best water quality that is currently attainable
 - Highest attainable condition must be re-evaluated at least once every 5 years
- Ensures incremental water quality improvements when full attainment of a WQS cannot be immediately achieved
- Results in less stringent WQBELs for that specific pollutant in the specified water body
- Must be reviewed and approved by EPA
 - Permit writer would then incorporate the applicable limit into the permit
- Ensures transparency and accountability to both the regulated community and the public
- Provides specific regulatory basis and required documentation to justify the need for a variance, interim requirements, and length of variance



EPA Office of Science and Technology, May 2024

Variations

- The State must retain in its WQS the initial use and criterion addressed by the variance, and all other applicable WQS remain applicable
- Not applicable if the use/criterion can be met by implementing technology-based effluent limits
- Subsequent variations may be obtained
- May be applied even where a TMDL is applicable
- Multiple-discharger variance (MDV)
 - Can reduce administrative burden with adopting many similar justifiable individual discharger-specific variations
- Expressed as:
 - Highest attainable interim criterion; or
 - Interim effluent condition reflecting greatest pollutant reduction achievable; (discharger specific only) or
 - If no additional feasible pollutant controls, an interim criterion reflecting greatest pollutant reduction with optimized and installed treatment AND a pollutant minimization program (PMP_
 - Steps to improve processes and pollutant controls that will reduce pollutant loadings

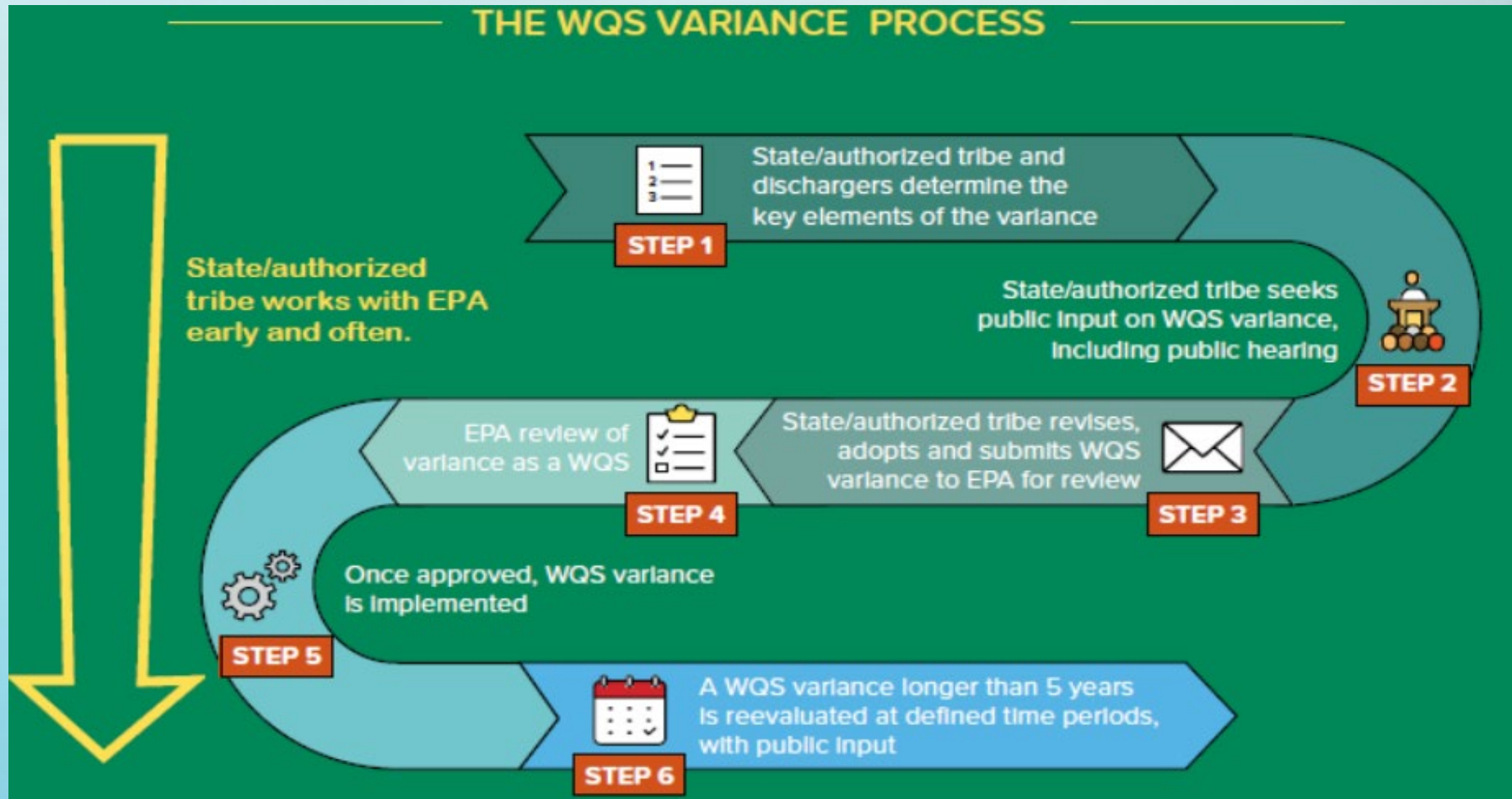
Variances

- Must be able to demonstrate use to aquatic life or rec is unattainable based on one of the following:
 - **Naturally occurring pollutant concentrations** Natural, ephemeral, intermittent or low flow conditions
 - **Human caused conditions cannot be remedied or would cause more environmental damage to correct**
 - Dams, diversions or other hydrologic modifications
 - Physical conditions related to natural features preclude aquatic life uses
 - **Controls more stringent than needed to meet technology-based limits cause substantial and widespread economic and social impact**
 - Actions necessary to facilitate lake, wetland, or stream restoration through dam removal or other significant reconfiguration activities preclude attainment of the use/criterion while the actions are being implemented

Variations

- Requirements
 - Identify the pollutant and waterbody segment
 - Interim requirements (highest attainable condition) which must be quantifiable by can be expressed as an interim ambient criterion or as an effluent condition
 - Term of the variance, which may only be as long as necessary to achieve the HAC
 - Reevaluation where the variance >5 years
- Submittal Requirements
 - Demonstration of the need for a variance
 - Demonstration that the term of the variance is as short as necessary to achieve the highest attainable condition
 - The interim WQS represents the highest attainable condition throughout the term of the variance
 - Cost-effective and reasonable BMPs for nonpoint source controls related to the pollutant and waterbody that could be implemented to make progress towards full attainment

Tools Available to Assist Discharger with Compliance



EPA Office of Science and Technology, May 2024

Discussion Points

- Variances
 - Questions/Comments?

Examples:

- Not historically done in HI, but achievable
- Time consuming and require re-evaluation every 5 years
- Need to know receiving water
- Will take time to carry implement and get approval, what to do in the meantime?

Open Forum –

Additional ideas on permitting functional equivalent discharges

Questions on topics presented today



Next Steps

Timeline: Progressing from now to September

*Meeting topics subject to change based on progress

Workshop 4 (August 26, 2024) - Virtual

- Potential FE criteria, process for identifying potentially affected facilities, prioritization for permitting

Workshop 5 (September 19, 2024) - Virtual

- Wrap up and stakeholder process summary
- Next steps

Anticipated Timeline and Topics (now to September 2024)

*Meeting topics subject to change based on progress

May 21 –
Intro and
background



July 2 –
Additional
strategies



July 31 –
Permitting
options,
feasibility of
compliance



August 26 –
Potential
criteria and
prioritization



September 19 –
Stakeholder
process wrap
up and next
steps



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THANK YOU!

FE Strategy Workshop #3

July 31, 2024

