

# Impairment Analysis Guidance

- Why create guidance document?
- What is baseline framework for performing analysis?
- What are suggested conceptual steps?
- Status of guidance under new committee framework

# Reclaimed Water: Legal Status

- Facility reclaiming water under RCW 90.46 permit has “exclusive right” to generated reclaimed water
- Reclaimed water facilities are exempt from needing a water right permit (RCW 90.03)

# Impairment Analysis Guidance: Basis

RCW 90.46.130(1): Except as provided in subsection (2) of this section, facilities that reclaim water under this chapter shall not impair any existing water right downstream from any freshwater discharge points of such facilities unless compensation or mitigation for such impairment is agreed to by the holder of the affected water right.

# Decisions Related to Reclaimed Water Impairment:

- Impairment analysis is required
  - Same meaning as with new/change WR
  - Ground and surface water rights considered
- Facility will do analysis and submit to WR for review as early as possible in planning process
- Existing RW facilities wishing to reclaim additional water may have to perform another analysis
- WQ will hold up issuance of permit if WR believes analysis is inadequate OR evidence of adequate compensation / mitigation lacking

# Definition of Impairment:

A condition caused by someone or something other than a natural condition where a water right holder cannot carry out the beneficial use(s) for which the right was perfected using reasonable care and diligence.

# Simple vs. Complex Impairment Analyses

- Simple:
  - 100% consumptively disposed wastewater
    - marine discharge, land application
  - Foreign flows
  - No downstream water rights

# Simple vs. Complex Impairment Analyses

- Complex:
  - Streams that go dry or are regulated each year by priority
  - Closed basins
  - Streams with instream flows defined by rule
  - Declining Aquifers
  - Ground water management aquifers

# Instream Flows

- Impairment will result if removal of effluent results in any reduction of flows below the legal instream flow at any time of the year (case law)
- Mitigation is possible
  - Drop-for-drop best, but others can be considered
- OCPI possible

# Surface Water – Ground Water Continuity

- MUST be considered
  - Affected wells adjacent to stream must fully penetrate aquifer before claim of impairment can be made (based on WAC 173-150)
  - Septic recharge

# Procedure for Analysis Differs in Non-Adjudicated vs. Adjudicated Basins in Some Steps

- Non-adjudicated basins:
  - All downstream right in final study area directly evaluated, from that closest to discharge point to that farthest away
- Adjudicated basins:
  - Proceeds from most junior downstream right to next most senior right until right is found that will not be "called" any more often as a result of WW discharge removal
  - Rights perfecting their use prior to the discharge may be omitted
  - Control point may also be used

# Procedure: Step 1

- Describe disposal method, quantify historical discharge:

$Q_{\text{impair}}$  = Subject to impairment analysis

$Q_{\text{total}}$  = Historical discharge

$Q_{\text{marine}}$  = Marine discharge

$Q_{\text{consumed}}$  = Other 100% consumed

$Q_{\text{foreign}}$  = Foreign to basin

$Q_{\text{ij}}$  = Infiltration/inflow foreign to basin

$$\text{Eq 1: } Q_{\text{impair}} = Q_{\text{total}} - Q_{\text{marine}} - Q_{\text{consumed}} - (Q_{\text{foreign}} + Q_{\text{ij}})$$

# Procedure: Step 1

- If  $Q_{\text{impair}} = 0$ , then impairment analysis is complete
- If  $Q_{\text{impair}} > 0$ , then the rest of the analysis must be completed for this amount.

## Procedure: Step 2

- Determine initial study area
  - Geologic and geographic boundaries of historic discharge area
  - Most likely larger than final study area

# Procedure: Step 3

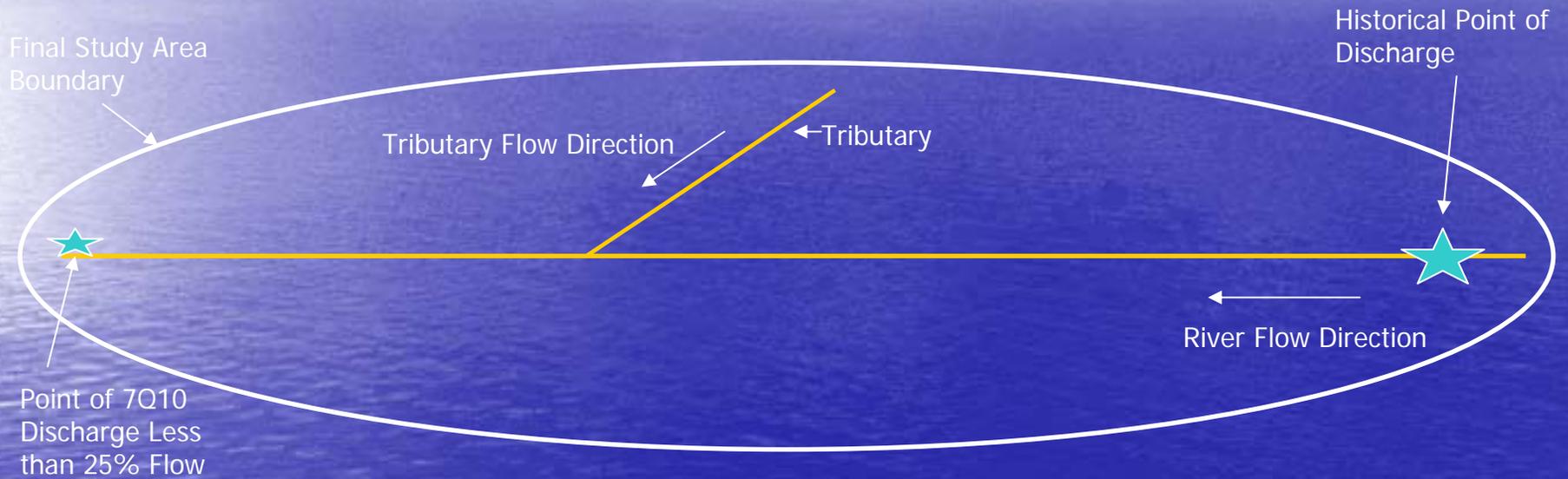
- Non-adjudicated Basins:

Establish Final Study Area by determining Downstream Effluent Influence Limit:

Compare  $Q_{\text{impair}}$  with 7 day, 10 year low flow (7Q10), starting at historical discharge point and proceeding downstream (from WQ WAC 173-201A)

Downstream Effluent Influence Limit is point at which effluent is less than 25% of 7Q10 flow  
(guidance, NOT rule)

# Schematic Example: River with Three Downstream WR



# Procedure: Step 4

- Non-adjudicated Basins:
  - Identify water rights in final study area
- Adjudicated Basins:
  - Identify indicator rights in final study area  
AND/OR
  - Identify control point(s) in final study area

# Schematic Example: River with Three Downstream WR



# Procedure: Step 5

- Non-adjudicated basins:

-From historic discharge point to effluent influence limit, iteratively perform the following calculations at withdrawal point for each downstream right:

$$Q_{\text{aug}} = (7Q10 \text{ flow}) + Q_{\text{impair}}$$

$$Q_{\text{WR}} = \text{sum of inst. WR amounts from point of discharge to that location (ISF and trust included)}$$

$$Q_{\text{free}} = \text{maximum amount of water that can be reclaimed without impairing the subject water right}$$

$$Q_{\text{free}} = Q_{\text{aug}} - Q_{\text{WR}}$$

- List values of  $Q_{\text{free}}$  for each water right withdrawal point

# Procedure: Step 5

- Adjudicated basins:

- Same as above, BUT start with first indicator right
- If there is no impairment of the indicator right, there will be no impairment of other rights

OR

- If control point regulates water budget of basin, make calculations specific to the needs of that system to indirectly determine effect of reduced flow on water rights

# Schematic Example: River with Three Downstream WR



In non-adjudicated basin, proceed downstream with calculations: WR1, WR2, WR3

In adjudicated basin, proceed with calculations for most junior right FIRST: WR3

# Proposed Reclaimed Water Means of Conveyance - Can it Affect the Impairment Analysis?

- Direct use: purple pipes - NO EFFECT
- Controlled use: Intermingling with waters of the state for conveyance - POSSIBLE EFFECT
- Mitigated use: Use of reclaimed water to mitigate for new water right withdrawal elsewhere - POSSIBLE EFFECT

# Procedure: Step 6

- Define plan for addressing impaired rights, if any.
  - Compensation / mitigation
    - obtain documentation
  - Project alteration
  - Project postponement
  - Water right purchase or condemnation

# Procedure: Step 7

- Submit Analysis
  - WR will usually review as part of a facility plan or engineering report

# Project Proponent Role

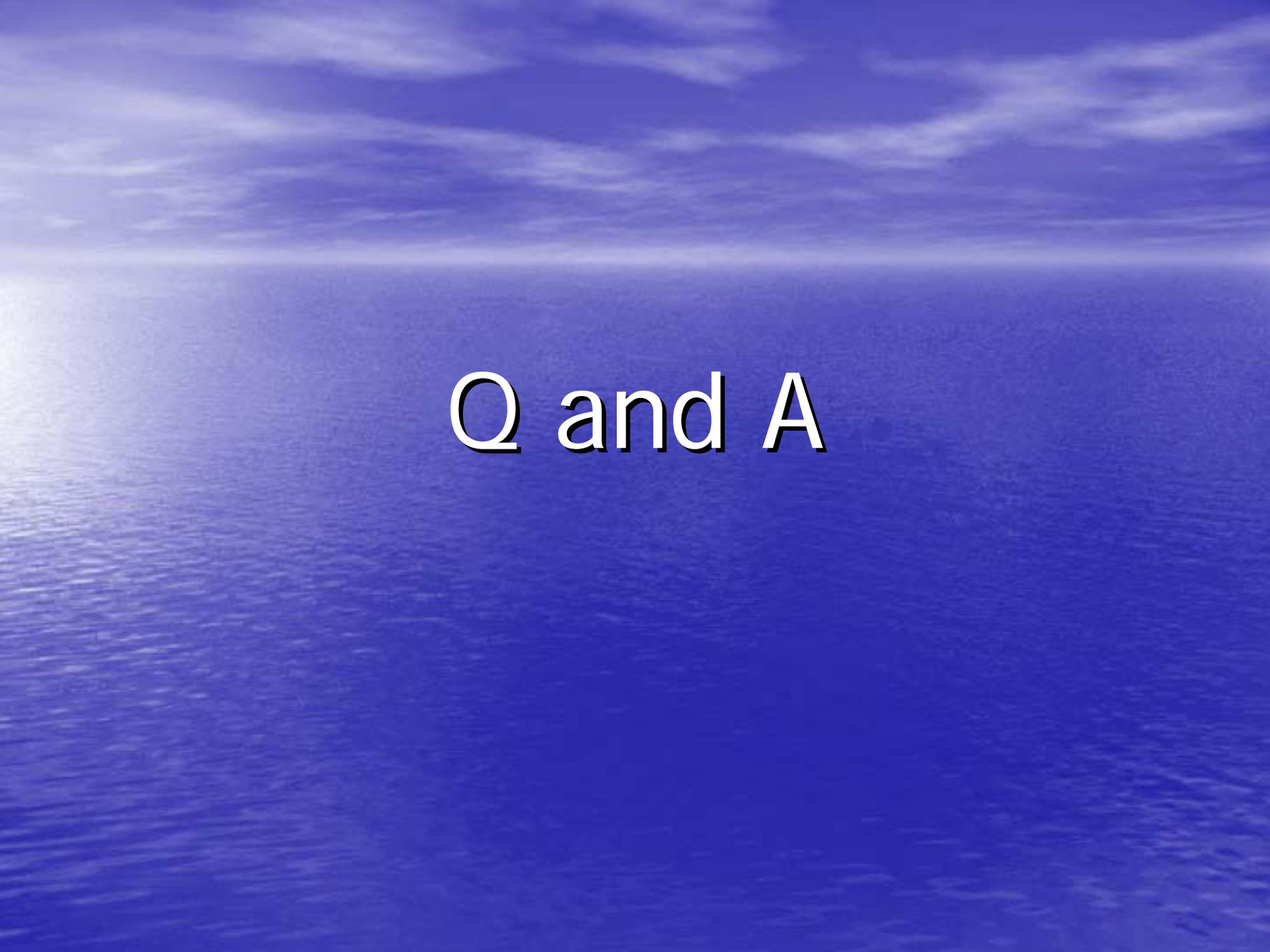
- Request data from Ecology
- Notify public (SEPA)
- Prepare analysis
- Request pre-plan meeting

# Department of Ecology Role

- Pre-plan meeting
- Provide WR related data
- Review Analysis

Every project is will have its own unique conditions and circumstances which will probably require adjustments to this process.

When in doubt, facilities can ask for guidance from Ecology.



Q and A