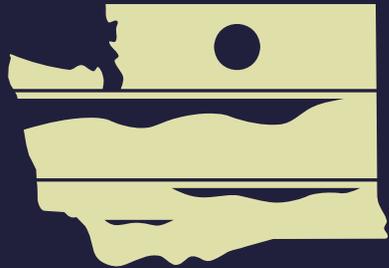




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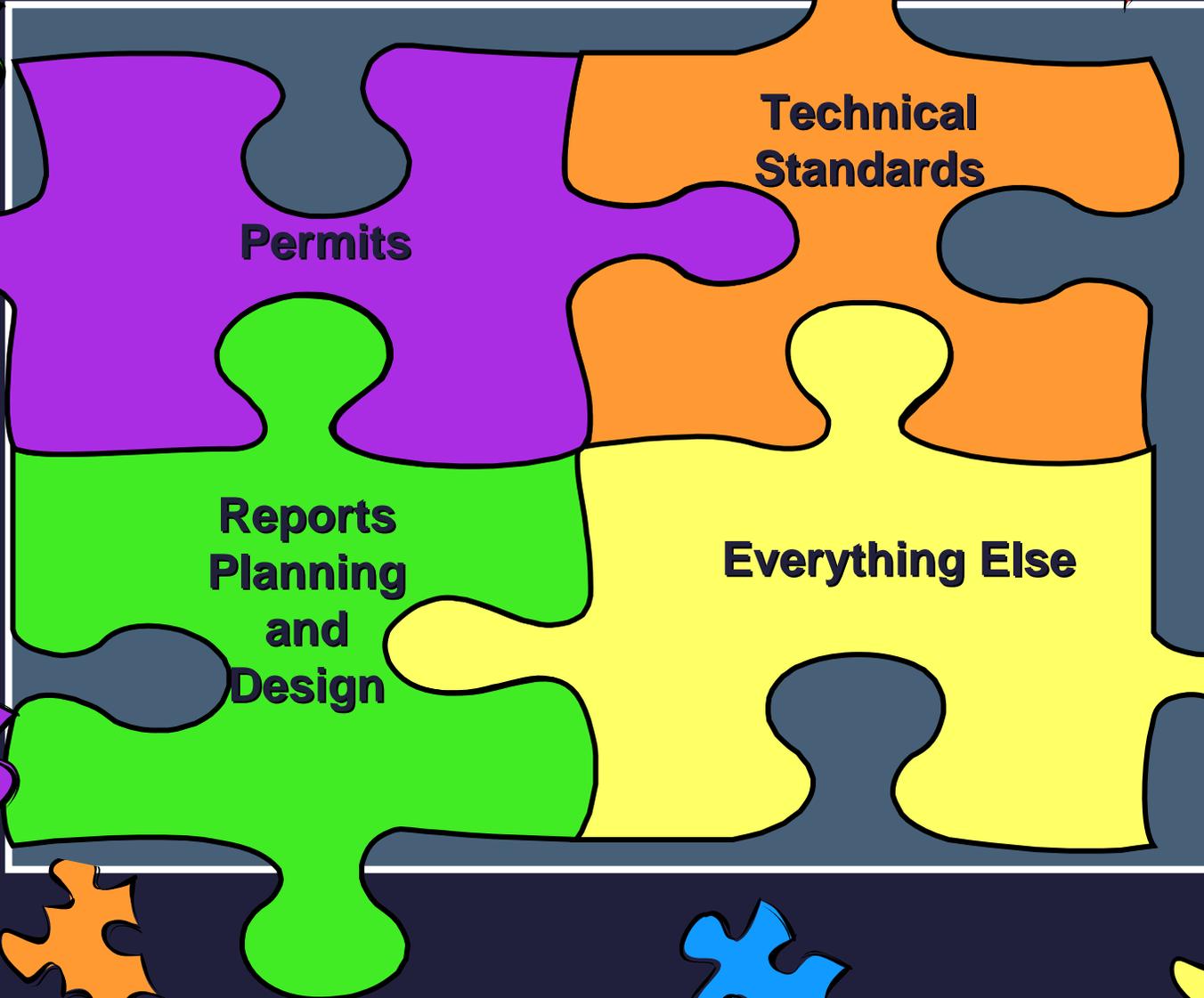
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Reclaimed Water Use

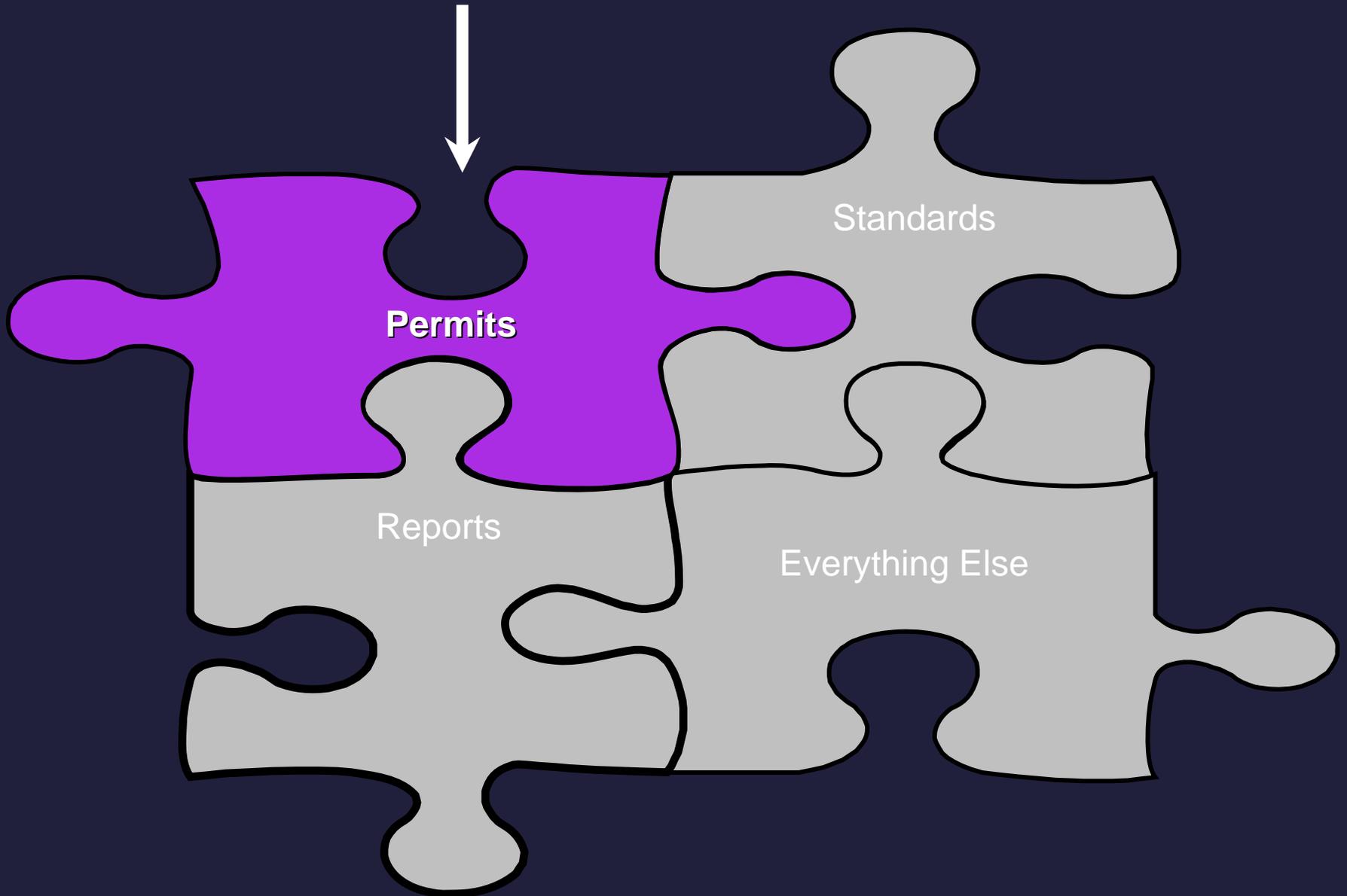
Rule Advisory Committee

February 14, 2006

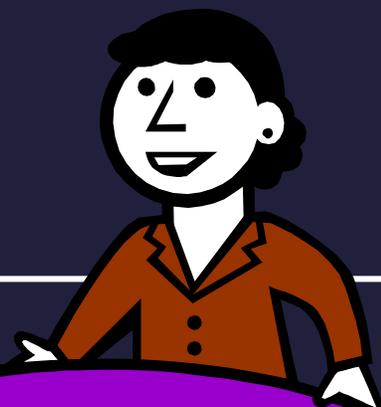
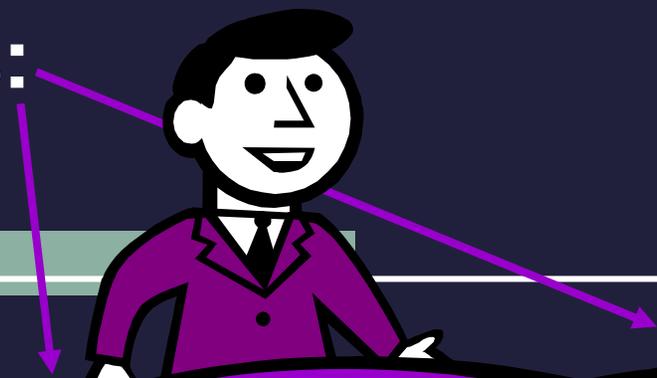
Our Rule Puzzle



Today's Focus: The Permit Process

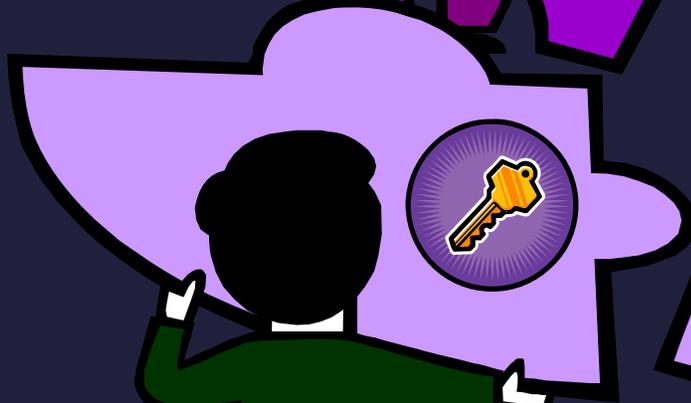


Focus:



Review #1-#9
Apply & Issue Permits

Introduce #10-16
Public Comment

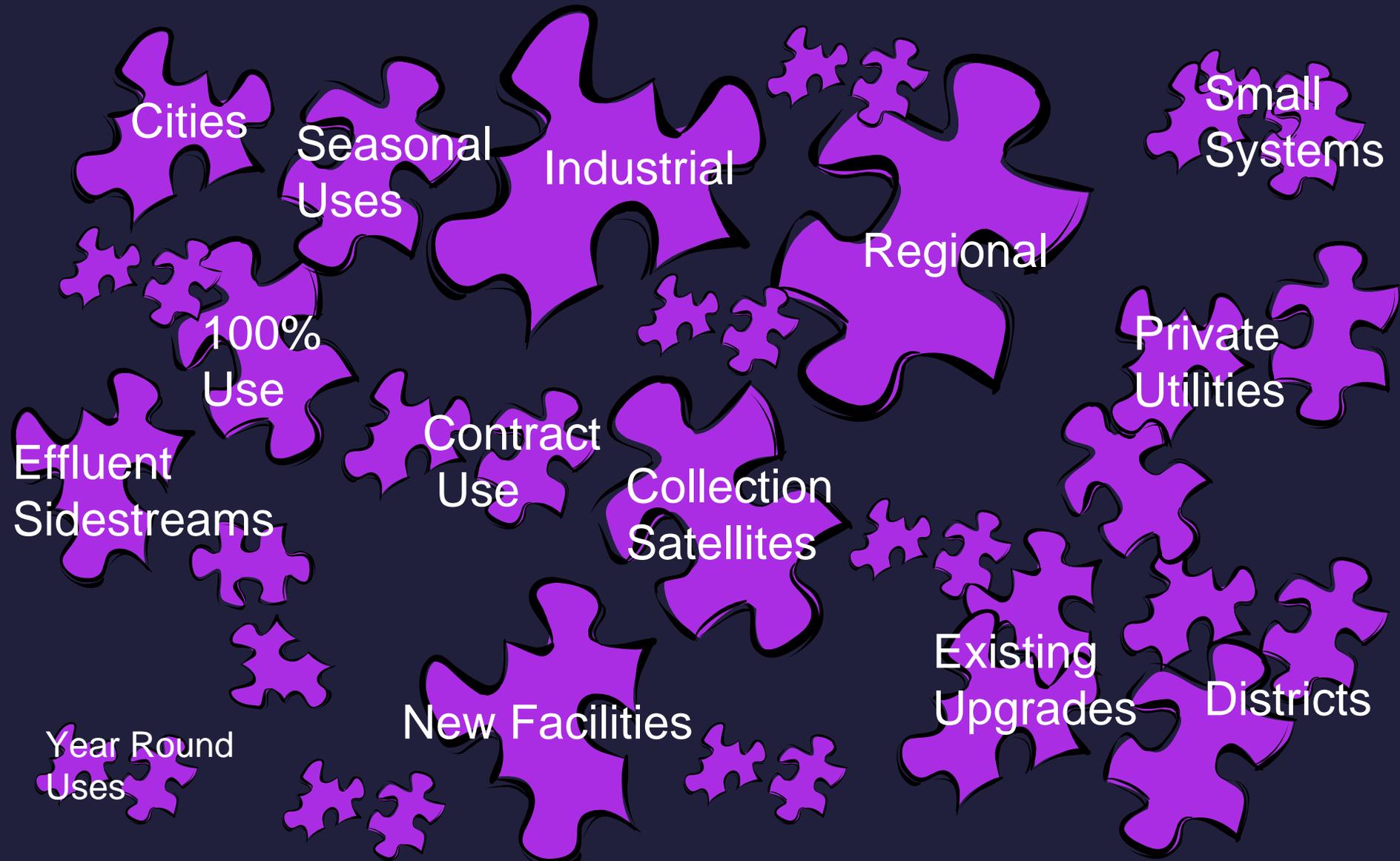


March & April
Permit Conditions



May
Compliance

Building the picture – by examples



Holmes Harbor Sewer District

- 100,000 gpd - New
- STEP Collection
- SBR
- Traveling bridge sand filter
- Chlorine disinfection



Permit:

- Ecology issued.
- State Class A Reclaimed Water
- Storage capacity 16 mgd
- Golf course irrigation use – 100%

Lessons:

- Compliance difficult to achieve.
- Need immediate feedback – on-line.
- Smaller quarantine storage is better.

North Bay/ Case Inlet

- 370,000 gpd – New Facility
- Replaces failed on-site systems.
- Opens shellfish harvesting areas.
- Sequencing batch reactors.
- Cloth disk filtration.
- Ultraviolet disinfection.



Permit:

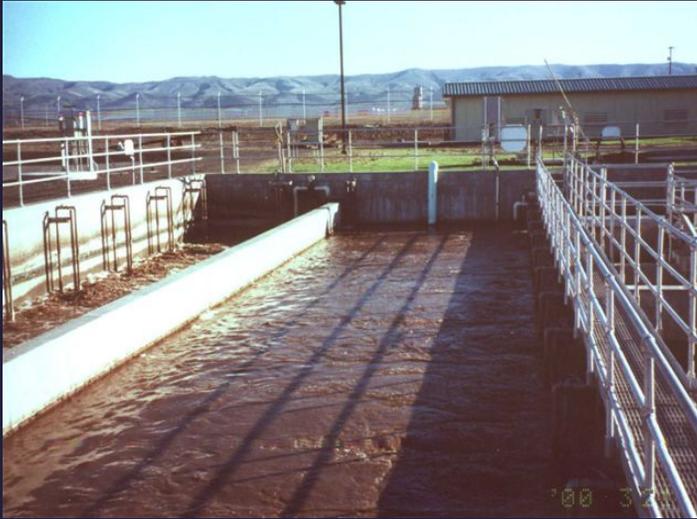
- Ecology State Reclaimed Water Class A + N reduction (100%)
- Forest irrigation - DNR land
- Groundwater recharge
 - Percolation basins

Lessons:

- GW recharge needed for winter.



Royal City



Permit:

- Ecology State Class A Permit.
- Reclaimed Water + N reduction
- 100% use.
- Groundwater recharge
 - Percolation basins
- Lessons:
 - Monitoring costs high.
 - Difficult to retain an operator G3.
 - Distribution is expensive.

- 250,000 gpd - Upgrade
- Extended aeration package plant
- Nitrogen reduction
- Cloth disk filter
- Ultraviolet disinfection



City of Ephrata



Permit:

- Ecology State – 100%
- Class A + N reduction
- Groundwater recharge
- Construction uses
- Seeking:
 - Water right credit

- 1.22 mgd - Upgrade
- Oxidation ditch with N reduction
- Upflow sand filter
- UV disinfection – hydraulic issues



City of Quincy



- 1.54 mgd - Upgrade
- SBR lagoons with N reduction
- Cloth disk filter
- Ultraviolet light
- Design - build
- Contract operations

Permit:



- Ecology State Permit.
- Class A Reclaimed Water
- Plus N reduction
- Groundwater recharge (100%)
 - Surface percolation
 - Ground water monitoring.

Lessons:

- Algae issues
- Protect UV system.
- Attractive to new businesses.



City of Walla Walla



- 9.6 mgd – Upgrade
- Secondary – TF and Oxidation ditch
- Nutrient reduction
- Traveling bridge sand filter
- UV disinfection (chlorine backup)

Permit:

- Ecology Issued
- Combined NPDES & State Permit – Class A
- Use - food crop irrigation
- Discharge to Mill Creek

Lessons:

- 3 stage compliance schedule
- Complexity of water issues



City of Medical Lake



- 1.0 mgd reclaimed water - Upgrade
- Oxidation ditch with nutrient reduction
- Dual media traveling bridge sand filter
- Ultraviolet disinfection

Permit:



- Ecology Combined NPDES and State Reclaimed Water – Class A
- Outfall 1 – Deep Creek
- Use 1 – W. Medical Lake
- Use 2 - City system

Lessons:

- Several outfalls.
- Contract clauses important.



City of Sequim

- 800,000 gpd - Upgrade
- Oxidation ditch.
- Conventional filtration
 - anthracite media
- Ultraviolet disinfection



Permit:

- Ecology Combined NPDES and State Reclaimed Water – Class A
- Marine discharge outfall.
- Several uses:
 - irrigation, toilet flushing
 - wetlands
 - streamflow augmentation

Lessons:

- Zero discharge difficult - phasing. Public very supportive.
- Conventional filtration works well.

City of Yelm



- 1.0 mgd - New
- STEP collection system
- SBR treatment
- Upflow sand filters
- Chlorine disinfection



Permit:

- Ecology Issued
- Combined NPDES & State Permit
- Class A + nitrogen reduction.
- Multiple uses.



Lessons:

- Seeking water right credit
- Expand in phases – add users.

- Irrigation
- City uses
- Wetland Park
- Groundwater
- Power (NPDES)

City of Snoqualmie



- 2.08 mgd - Upgrade
- Oxidation ditch
- Traveling bridge dual media filter
- UV disinfection

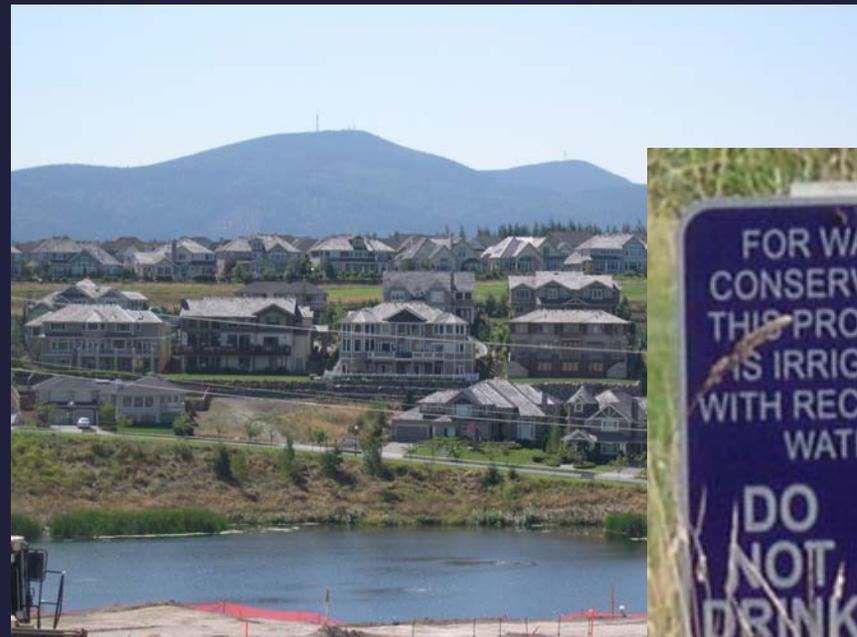
Permit:

- Ecology Issued
- Combined NPDES & State Permit
- Class A Seasonal Use at 1.0 mgd.
- Golf course and landscape irrigation.
- Off season river discharge.



Lessons:

- Public-private partnerships work.
- Need better control over use areas.
- Can charge potable rates.



King County South Plant

Class A for irrigation and
commercial-industrial uses.

1.3 mgd – effluent treatment

Upflow sand filter

Chlorine disinfection



Permit:

- State Reclaimed Water Permit.
- Issued separately from NPDES.
- Includes DOH conditions.
- Requires modification to:
 - Distribute other classes of water.
 - Install additional treatment facilities.

Lessons: Permits need streamlining.

Easier way to add new users.

City of Everett

- 💧 200,000 gpd
- 💧 Secondary effluent
- 💧 Chlorine disinfection.
- 💧 Use
 - 💧 non-contact cooling at Kimberly-Clark
 - 💧 Closed loop
 - 💧 no mist or aerosols (Class C standard)
- 💧 Discharged via Everett outfall to Puget Sound.



Permit:

- Ecology NPDES
- Issued to Everett.
- DOH industrial use condition – S15

Lessons:

- Waiver of Class C requirement approved.
- Public private partnership.

City of Chehalis



3.5 MGD

Under construction

SBR treatment

Sand filters

UV disinfection

Chlorine residual

Class C and Class A



Permit:

Consent decree under Chehalis TMDL

Under construction.

Poplar plantation use - seasonal

Lessons:

Need clarity on conflicting state requirements

– water quality TMDL and water right impairment

Cardinal Float Glass (Winlock WA)



- All on-site.
- Domestic wastewater
- 10,000 gpd
- Membrane bioreactor
- Sodium hypochlorite
- Scrubber use.

- Class A DOH permit – issued through Ecology Lessons:
- Process for permitting a small business system needs streamlining.

Filtered Wastewater – Prior to Disinfection ^c		
<u>Parameter</u>	<u>Average Monthly</u> ^a	<u>Average Weekly</u> ^b
BOD ₅	5 mg/L	15 mg/L
TSS	5 mg/L	15 mg/L
Dissolved Oxygen	Shall be measurably present in secondary effluent at all times	
Filtered Wastewater – Prior to Disinfection		
<u>Parameter</u>	<u>Average Monthly</u> ^a	<u>Sample Maximum</u> ^d
Turbidity	0.2 NTU	0.5 NTU
Disinfected - Reclaimed Water		
<u>Parameter</u>	<u>7-day Median</u> ^e	<u>Sample Maximum</u> ^f
Total Coliform	2.2 #/100 ml	23 #/100 ml
pH	Shall be between 6.0 and 9.0 standard units at all times	

Woodinville Water Experimental



3000 gpd
Septic tank
Membrane bioreactor

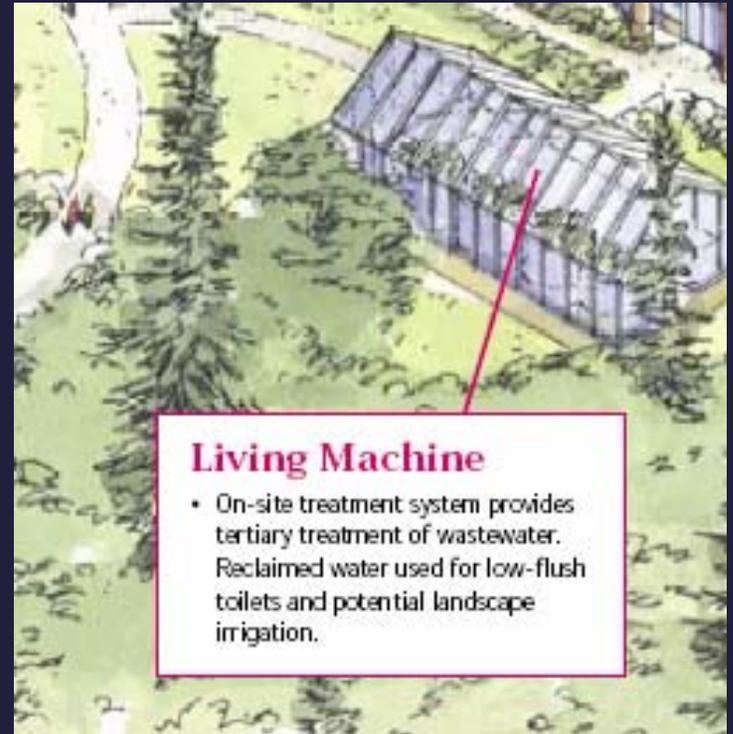


- Permit – local health
- Experimental
- On-site subsurface disposal

Lessons: Need a straightforward permit process.
Affordable monitoring.



Island Wood Living Machine



Living Machine

- On-site treatment system provides tertiary treatment of wastewater. Reclaimed water used for low-flush toilets and potential landscape irrigation.

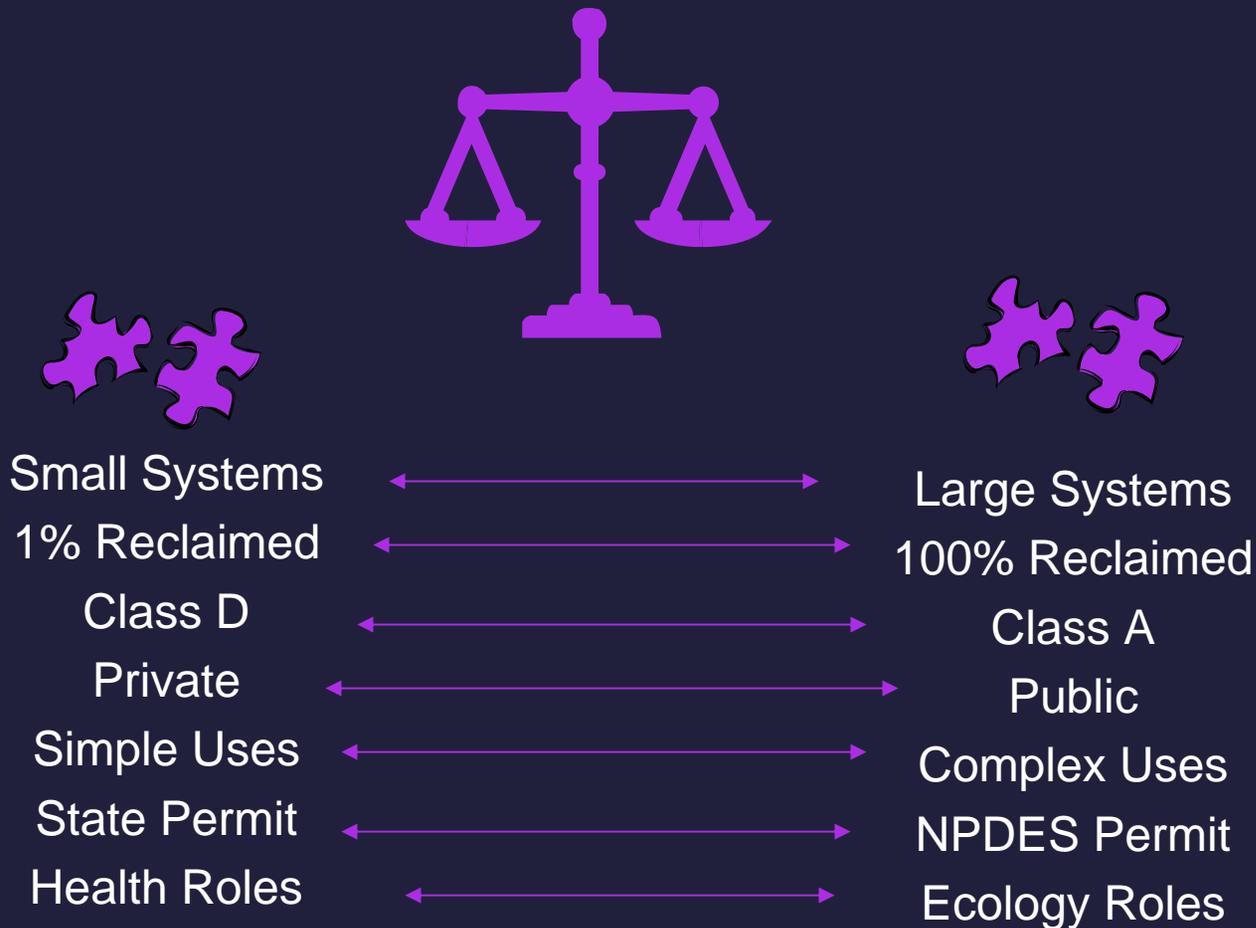
Permit:

- 3500 gpd – New – issued by DOH. Not reclaimed water.
- DOH conventional large on-site subsurface disposal.
- Has not met standards for Class A reclaimed water use.

Lessons:

- If reclaimed water, how should permit be issued?

Summary - Permit Process Challenges

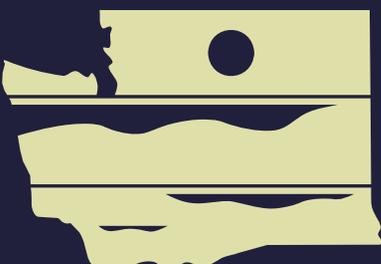




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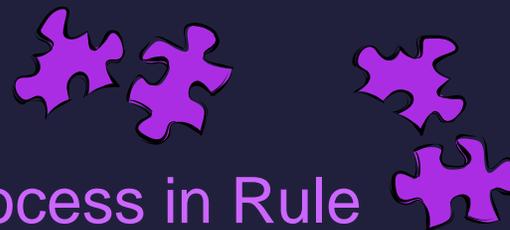
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Discussion

Next Steps:



The Permit Process in Rule