

MITIGATING INSTREAM FLOW IMPACTS OF PROPOSED WATER WITHDRAWALS

September 5, 2003

WRIA 13 Watershed Planning Committee
Water Quantity Work Session

Intent of Work Session

- Present overview of draft WRIA 13 Mitigation Report
- Obtain preliminary Committee comments, revisions and reservations; request for preliminary support.
- Prepare for next step: Distribution to DOE SW Water Resources for dialogue

Content of draft WRIA 13 Mitigation Report

- Key issues: Groundwater/surface water continuity, critical role of mitigation.
- Guidance from legislation, Hearings Board and Supreme Court cases.
- Draft Mitigation definition and requirements.
- Mitigation methods and potential applicability to WRIA 13.

Key issues: Water needs, Instream Flow protection & mitigation.

- Priority sources to meet future needs are conservation, transfer of existing rights, reclaimed water.
- However, additional groundwater sources will be required to meet projected community needs.
- GW/SW “hydraulic continuity” is common in region.
- DOE cannot approve new WRIA 13 GW rights that would “impair” surface water to any degree.
- Thus, mitigation framework is critical to WRIA 13 mission: *Protect aquatic habitat and provide water for vital community needs.*

Suggested Approach to Mitigation

- To extent feasible, ***avoid*** or ***minimize*** impacts; then ***compensate*** where necessary to meet out-of-stream uses and protect ISF.
- Recognize limitations of mitigation, both site-specific limitations re: applicable techniques and ultimate limits to regional water availability.
- View mitigation as important part of water mgt picture, which merits better guidance for applicants, permitting agency staff and others.

Observations regarding mitigation

- Between DOE Regions, significant diversity in types of mitigation allowed and requirements.
- Mitigation is most useful where ISF impact is a relatively small percent of total proposed withdrawal – must be feasible to invest in mitigation measures.
- Specific mitigation actions do not stand alone; part of comprehensive package of conditions on water right.
- No DOE Rule or formal guidance. However, appeals cases provide useful foundation and sideboards.
- Most DOE mitigation (per recent report) were on-site. Most effective may be basin-wide approach (utilized for State infrastructure projects)

Heritage: 1980 Instream Flow Rule

- Based on now-outdated science, 1980 IRPP assumed that affect of Rule on groundwater proposals would be limited. GW not even included in “future rights” section.
- **WAC 173-513-050 Ground water.** Future ground water withdrawal proposals will not be affected by this chapter unless it is **verified** that such withdrawal would **clearly have an adverse impact** upon the surface water system...
- **WAC 173-513-080 Future rights.** No rights to divert or store public **surface waters**...shall hereafter be granted which conflict with the purpose of this chapter..
- *Original DOE approach to WRIA 13 GW/surface water management did not work out.* It is now appropriate to return to this issue, identify approaches based on good science to protect ISF and make vital water supplies available to our communities.

Guidance on balancing resource protection & water supply: 1971 Act Fundamentals

Principles from 1971 Water Resources Act providing a foundation for mitigation include:

- Recognize “natural interrelationships of surface and ground waters” in allocation of water
- Secure maximum net benefit for people of the state
- Preserve natural conditions of streams and lakes
- Protect adequate & safe supplies for human needs
- Emphasize conservation as additional source

Guidance from Appeals and Court Decisions

Guidance on continuity & mitigation provided by Pollution Control Hearings Board appeals (ex. *Manke*) and Supreme Court cases (ex. *Postema*) includes:

1. New science trumps outdated text of Instream Flow WACs
2. Denial is required where proposed GW withdrawal would reduce flow in “closed” stream
3. Measurable reduction in stream flow is not required; there is no “significant” test applied to impairment
4. Impairment must be found, not simply indication of continuity; I.e. during particular timeframe, pumping from specific well may not impair ISF rights (note: all four from *Postema*)

Guidance from Appeals and Courts (Con't)

5. Development-driven change in land cover or stormwater management cannot be used as mitigation
6. Long-term certainty of mitigation must be assured. “Certainty” factors identified in *Manke* denial of septic secondary recharge as mitigation factor:
 - Amount, timing, and quality of mitigation water;
 - How long-term changes such as vegetation and water use will affect the mitigation (ex. conversion to sewer); and
 - Assurance that duration of mitigation will match “the perpetual nature of water rights”

Guidance from State Documents

No DOE Rule or Guidance adopted. However, other guidance available to us includes:

- **“Mitigation Measures Used in Water Right Permitting”** (4/03, DOE Headquarters Water Resources Program). Various Regions provided examples of mitigation measures. Stem from applicants, DOE staff and appeal settlements.
- **State Interagency Mitigation Agreement** for Infrastructure Projects (WSDOT, DOE et al). Includes basic definitions and principles used in WRIA 13 Report.

Proposed Definition

“Mitigation”: Actions to avoid or compensate for impacts to instream flow from a proposed new water right or w.r. change, using the following implementation sequence to extent feasible:

- **Avoid** impact altogether through optimal use of existing allocations.
- **Minimize** ISF impacts, ex. modify location, depth or timing of withdrawal.
- **Compensate** by replacing water or providing substitute resources to offset a measurable or calculated reduction in stream flow during critical flow periods

Proposed General Requirements

1. Avoidance and minimization measures must be maximized.
2. Generally accepted scientific methods must be used to determine ISF impact.
3. Compensatory mitigation must be directly proportional to unavoidable ISF impact.
4. In-kind compensatory mitigation proposals must identify amount, location, timing and quality of water returned; and possible changes in vegetation and water uses over time that may affect mitigation.

General Requirements (con't)

5. Out-of-kind mitigation must provide an overall net gain for the aquatic resources of the watershed.
6. Mitigation measures must be sustained and effective for the duration of the water right.
7. Mitigation measures must not impair existing water rights.
8. Performance standards, monitoring program, contingency plans and adaptive action thresholds must be delineated.

Mitigation Measures

- Two categories: “In-kind” measures augment stream flow in a specified quantity; “Out-of-kind” measures improve net aquatic resource conditions.
- Report content: For each method, summarizes prerequisites; examples; and potential applicability to WRIA 13.

“In-Kind” Mitigation

Method 1: Retire existing surface water rights equal to ISF impact from the proposed new withdrawal.

Highly quantifiable direct mitigation measure.

Prerequisite: Available valid surface rights to retire.

Example: Thurston Co Grand Mound Water System
(modeled impact to Chehalis ISF; purchased rights)

Potential applicability to WRIA 13: Theoretically, we have existing surface rights in nearly all areas. However, legally valid quantity may be less.

Deschutes: Limitation due to protecting surface rights for Long-Term Ag lands.

McAllister Creek: Strong opportunity via Nisqually Aquifer Mgt proposal, Olympia shift from Springs/Creek to wells.

Method 2: Use groundwater to augment stream flow during low flow periods.

Prerequisites:

Groundwater must be available for augmentation (“pump and dump”) plus proposed water use, without impairing existing water rights or ISF.

Satisfactory well water quality (or treatment). Issues have included temp, dissolved oxygen, nitrates, chlorine.

Examples: DOE report has several cases from NW Region.

Example: City of Sumas must augment Johnson Creek at 18 gpm for every 100 gpm withdrawn from wells.

Potential applicability to WRIA 13: Most areas have deep aquifers which may be possible source for ISF augmentation. But we also have interaction between upper & lower aquifers. Need: Further detailed info from DOE on past use of this technique.

Method 3: Store surface water for metered release into stream during critical flow periods.

Prerequisites: Source of water and storage facility. Also, water quality must be adequate. Most applicable to property adjacent to a stream.

Examples: Gravel washing return ponds (Cadman Rock, NW Region); stormwater ponds (P&D Development, SW Region) required to discharge to supplement low-flow.

Potential applicability to WRIA 13: Two gravel operations have Deschutes surface rights. Mitigation-oriented seasonal release to river may potentially be feasible as adjunct to gravel washing operations.

Method 4: Discharge reclaimed water to stream or GW to augment streamflow.

Prerequisites include: Source of reclaimed water with adequate water quality. For GW recharge, site must have suitable geology re: direction/rate of GW flow to stream.

Example: City of Yelm proposing water rights “credit” for reuse including groundwater infiltration.

Potential applicability: *Significant long-term opportunity* via LOTT “satellite” program. Target date for first 1 mgd capacity increment and potential applicability to ISF:

Budd Inlet (2004): Limited applicability for ISF mitigation.

Hawks Prairie (2006): High augmentation potential for Woodland Crk (<1/2 mi from plant), possibly McAllister Crk.

Airport/West (2014) and Chambers Prairie (2016): Augmentation potential for Chambers Creek and lower Deschutes. Availability is over 10 years away

Ultimate LOTT reclaimed water capacity ~ 15 mgd

Method 5: Reduce net impact through replacing existing wells in the upper aquifer with new withdrawals from deeper wells with less continuity

Prerequisites include: Applicant must have existing wells in upper aquifer (or access to exempt wells) and source in deeper aquifer with less continuity; technical justification.

Examples include:

- Shift from shallow to deep wells in multi-phase source development. (Seabeck; NW Region)
- “Exempt” wells decommissioned (Park Junction, SWRO)

Potential general applicability to WRIA 13:

- Potentially applicable to most areas (not upper Desch)
- Applicable to diverse sizes of systems.
- Documentation: Uncertainty regarding requirements and adequacy of available information.

Method 6: Shift production between utility's network of wells to partially mitigate impact to instream flow.

Prerequisites:

- Utility with multiple wells with varying degree of continuity or time of travel to stream.
- Capacity to seasonally forgo or reduce use of specific wells; supplemental water rights for least-impact wells.

Examples: Several cases cited from DOE NW Region.

Potential applicability to WRIA 13:

- Potential applicability to Lacey, Olympia and Tumwater. However, meeting peak day may still require all sources.
- Accurate quantification of ISF benefit may be a challenge. May be most acceptable as part of package of conditions.

Out-of-Kind Mitigation Measures

- DOE Mitigation report and other sources included several measures that preserve/improve stream habitat or provide other water resource benefits, but do not result in readily-quantifiable augmentation of stream flow.
- May be applicable as part of a comprehensive mitigation package, or where ISF impact is relatively minor and all parties agree that there will be net habitat improvement.

1. Riparian habitat preservation and restoration

Prerequisites:

Well-defined critical needs for habitat preservation & restoration.

ISF impact minor vs. benefits from proposed mitigation.

Net positive benefit for aquatic habitat.

Examples: Stream habitat preservation is component of Trendwest Resorts permit mitigation; Central Region.

Fairwood Golf Course required to enhance stream habitat and fund streamflow/water quality monitoring; NW Region.

Potential applicability to WRIA 13: Potential mitigation frameworks include upcoming TMDL plans in Henderson (~2004) and Deschutes (~2005). Some existing habitat limiting factors studies especially for Deschutes.

2. Wetlands restoration

Prerequisites: Degraded wetlands associated with stream; relatively minor ISF impacts from proposed withdrawal. Most applicable where corridor-wide wetland studies are available.

Examples: No examples of this were identified in the DOE Mitigation Report.

Applicability to WRIA 13: Potentially applicable to many areas due to widespread presence of degraded wetlands. Streams with old ditch systems include Woodland, Woodard, Chambers and Bigelow. For Deschutes, existing reports identify wetland habitat locations and conditions.

3. Water efficiency: Conservation

Essential component of “minimizing impact”.

Examples: Conservation is part of several mitigation cases in DOE report. Innovations include new golf course required to participate in designing conservation measures for existing golf courses (St Andrews, NWRO).

Applicability to WRIA 13:

- Through LOTT-sponsored conservation, city utilities are saving over 300,000 gallons per day. Residential per capita flows were reduced over 6% in 6 years. Lacey & Olympia Water System Plans target 1% reduction/year.
- For smaller water utilities, funding for conservation measures may be a challenge.
- Other important water users include irrigation & commercial/industrial. Include in WRIA strategy?

4. Water efficiency: Replacing potable supplies with reclaimed water

Prerequisite: Reclaimed water that can be economically substituted for potable water in irrigation & other uses.

Examples: Reclaimed water required for portion of irrigation. Park Junction Partners; SW Region.

Applicability to WRIA 13: Long-term opportunity via LOTT program. Significant obstacles include:

- Most large irrigators in urban area have their own independent wells (ex. golf courses).
- Cost for an entire new “purple pipe” network is very significant. And current utility funding methods are a poor fit (developers fund most pipeline extensions; utility rates are based on cost of economical service). State or federal funding may be essential to make reuse a reality in near future.

Next steps: Incorporate Planning Committee preliminary comments and circulate to DOE

- Planning Committee comments, concerns & outstanding questions will be incorporated into Mitigation Report.
- Revised report will be circulated to DOE SW Water Resources for review and dialogue.
- Results of DOE review will be reported to Technical Committee and Planning Committee. Intent: Include refined mitigation framework in WRIA 13 Watershed Plan.

Committee member comments and additions

- Other mitigation techniques of interest to add to “menu”?
- Issues of concern or opposition to be identified in report?
- Suggestions for revision?
- Preliminary support in moving this issue to DOE Southwest Water Resources for dialogue? Are Planning Committee members interested in participating?