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9 Re: COMMENTS on proposed Amendment to Chapter 173-501 WAC Instream Resources Protection
10 Program - Nooksack Water Resource Inventory Area (WRIA) 1
11

12 Date: January 13 2020
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14 Via: online comment form submitted to: <http://oth.ecology.commentinput.com/?id=fdG6m>
15

16 Formal Title of DOE action: Amendment to Chapter 173-501 WAC Instream Resources Protection
17 Program - Nooksack Water Resource Inventory Area (WRIA) 1
18

19 BASIS OF COMMENTS: The document titled Draft Rule Supporting Document November 2019,
20 hereinafter: **SupportingDoc11-093**, which Ecology has designated as Publication: 19-11-093
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22 This document is available on the Department of Ecology's website at:
23

24 <https://fortress.wa.gov/ecy/publications/summarypages/1911093.html>
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26 Ecology issued an earlier version titled Preliminary Draft for Public Comment in April 2019, referred to
27 herein as **DraftSupportingDoc04**.
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29 NOTE: various times herein the text of the two versions of the supporting document may be compared and
30 contrasted.
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46 This document focuses primarily upon Ecology's reduction in water use rates in its proposed amendment to
47 WAC 197-201, the Nooksack or WRIA 1 instream flow rule. Ecology proposes to reduce water use rates
48 for domestic wells from the statutory 3,000 gallons per day (gpd) indoor use, and 1/2 acre outdoor
49 irrigation, to 500 gpd indoor use and 1/12 acre outdoor irrigation.

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51 No explanation provided for the propose use rate reductions: In **SupportingDoc11-093** Ecology provides
52 no explanation for why it chose the specific use rates it did. In all 78 pages and 3.3 Megabytes of text,
53 tables and figures found in **SupportingDoc11-093** one finds nothing used to justify the rate reductions.
54 Might it have chosen, for indoor use rate, 400 gpd, or 800, or any other figure? Why 500 gpd exactly?
55 Same issue with the outdoor rate.

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57 No detailed criteria stated for selecting the use rates: Neither does Ecology state any detailed criteria it used
58 for selecting the reduced use rates. Instead it points to the requirement of full offset and Net Ecological
59 Benefit provided for the water consumptively used by the next 20 years-worth of domestic wells at
60 whatever the use rates are to be. Other use rates, higher or lower, could meet those simple and vague
61 criteria. During the public hearing held at Lynden Middle School on January 8, vague references were
62 made to the availability of funding. Since the projects do not all have to be funded at the beginning of the
63 period in which the rule takes effect, lack of immediate sources of funding is an unjustifiable excuse.

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65 No justification offered for the rate reductions: If administrative rules should rest upon a firm factual and
66 analytical foundation, then Ecology should provide a detailed justification for the use rate reductions. Just
67 as Ecology offers no criteria for selecting use rates, or explanation for its choice of the proposed rates, it
68 has also failed to provide any justification for those rates.

69

70 The statutory use rates meet the stated criteria: Given the amount of offset water that the projects Ecology
71 has placed on its approved list, the statutory use rates of 3,000 gpd indoor use and 1/2 acre outdoor
72 irrigation can meet the criteria of full offset and Net Ecological Benefit provided for the water
73 consumptively used by the next 20 years-worth of domestic wells.

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75 The use of the USGS program STRMDEPL08 remains inapposite, despite some changes since the draft
76 version of the Supporting Document. The assumption of continuous pumping for 90 days straight does not
77 apply to domestic wells and will greatly overstate impacts of domestic wells on nearby streamflow.

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79 The results of the overall streamflow depletion impacts as displayed in Figures 4.2 and 4.3 is based on a
80 false premise and is thus fatally flawed and damagingly misleading.

81 **SupportingDoc11-093** displays Figure 4.2, titled "Stream depletion from a well over a twenty-year
82 timeline," and Figure 4.3, titled "Analytical results obtained from the USGS STRMDEPL08 program
83 utilizing parameters that are typical for the Sumas Aquifer in Whatcom County." Ecology claims these
84 figures estimate the steady state depletion rate after 20 years of new domestic well pumping. These
85 displays, and any analysis based on them, is fatally flawed because it assumes that all 2,150 domestic wells
86 start pumping at Year One, that is, in 2018! To the contrary, roughly one-twentieth of the wells will begin
87 pumping at any given year and it will not be until year 20 that the total estimated 2,150 wells will be
88 pumping. Thus, the estimated steady-state depletion rate will be reached in the year 2058, not 2038.

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90 Sadly, **SupportingDoc11-093** reads like the cynic's definition of government planning: the collection of
91 information used to justify a pre-determined conclusion. That Ecology has chosen to take this route poses
92 potential damage to the agency's credibility.

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99 **The *Hirst* Case:**

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101 **Analysis of *Hirst* in light of prior state supreme court decisions:**

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The *Hirst* decision appears to contradict the court's previous decisions on the same issue, namely in the **Kittitas** and **Swinomish** cases.

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In *Kittitas County v. Eastern Washington Growth Management Hearings Board*, the court, inter alia, "...addressed the counties' and Ecology's respective roles in regulating water rights. Petitioners had argued that the County is entirely preempted by Ecology from adopting regulations related protecting groundwater resources. The court disagreed, holding that nothing in Washington's Ground Water Code expressly preempts consistent local regulation. The court further held that "[i]n fact, several relevant statutes indicate that the County *must* regulate to some extent to assure that land use is not inconsistent with available water resources." The court concluded, therefore, that "[w]hile Ecology is responsible for appropriation of groundwater by permit under RCW 90.44.050, the County is responsible for land use decisions that affect groundwater resources, including subdivision, at least to the extent required by law.""

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Source: <http://www.martenlaw.com/newsletter/20111013-wash-water-rights-restricted>

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The operative phrase is "... at least to the extent required by law." Since WAC 173-501 allows permit-exempt wells for WRIA 1, it seems to follow that in allowing building permits to applicants relying on permit-exempt wells, Whatcom County was well within the law.

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In the second case, *Swinomish v Ecology*, the court found that in an area where DOE had adopted a highly restrictive instream flow rule, Ecology itself could not modify said rule to permit some exceptions (reservations) for new water uses even in cases where both DOE's experts and those of WDFW "... had determined the amount of water allocated for the new uses represented less than the amount that would result in significant adverse impacts to fish populations." The court also held that no amendment to an instream flow rule could contradict any existing provision of the water code.

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Source: <https://jordanramis.com/resources/articles/washington-supreme-court-acts-to-limit-acquisition-of-n/view/>

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In essence, then, in these two cases the supremes decided that DOE's instream flow rules are sacrosanct and immutable unless and until new information is uncovered and/or, presumably, any new provisions are made to assure instream flows are met by other means. In any case, a DOE rule could not be changed, even by DOE, without going through the rulemaking process set forth in the state Administrative Procedures Act, RCW 34.05: <https://app.leg.wa.gov/rcw/default.aspx?cite=34.05>.

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In its decision in *Hirst*, by contrast, the court relied upon an assertion of fact by the petitioners – that the cumulative use of a few thousands more permit-exempt wells would have an adverse impact on streamflows – which apparently went unchallenged by the county's attorneys. The opening summary of the decision reads as follows:

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The GMA requires counties to ensure an adequate water supply before granting a building permit or subdivision application. **The County merely follows the Department of Ecology's "Nooksack Rule";** it assumes there is an adequate supply to provide water for a permit-exempt well unless Ecology has expressly closed that area to permit-exempt appropriations. **This results in the County's granting building permits for houses and subdivisions to be supplied by a permit-exempt well even if the cumulative effect of exempt wells in a watershed reduces the flow in a water course below the minimum instream flow.** We therefore hold that the County's comprehensive plan does not satisfy the GMA requirement to protect water availability and that its remaining arguments are unavailing. We reverse the Court of Appeals in part and remand to the Board for further proceedings. **[emphasis added]**

Source: <http://www.ecy.wa.gov/programs/WR/wrac/images/pdf/91475-3opinion.pdf>

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What distinguishes *Hirst* from *Kittitas* and *Swinomish* is that in the latter two cases the supremes upheld the supremacy of DOE’s instream flow rules, whereas in *Hirst* the court found that DOE’s rule was inadequate. Arguably, it did so without basis in fact or in law. Certainly, the factual basis of the majority’s opinion is faulty, as will be shown below.

What do these three cases have in common? *Kittitas*, *Swinomish*, and *Hirst* all further restrict homebuilding and other development in rural areas of the state. Critics of the *Hirst* decision point to that commonality to suggest that the state supreme court majority, whose campaign contributors are largely made up of interests that oppose rural growth, are biased and are re-writing the law to suit the anti-rural growth agenda. Thus, critics of the *Hirst* decision see it as an attempt to effect a huge downzone by other means.

During the case, DOE filed an amicus brief in support of the county’s position. After the decision, it did an about-face and made excuses as to why the decision might not have been so erroneous after all, as posted on this page of their site:

“Why do some instream flow rules govern permit-exempt wells but others don’t?”

“We began adopting instream flow rules in 1976. **Rules that were adopted before 2001 do not specifically govern permit-exempt uses of groundwater.** This is the case with the Nooksack River rule in Whatcom County.

“The instream flow rules developed since 2000 are much more comprehensive than their counterparts in the 1970s and early 1980s. These newer rules address the use of permit-exempt groundwater.” [**emphasis added**] Source: <http://www.ecy.wa.gov/programs/wr/nwro/hirst.html>

The text of WAC 173-501 seems to suggest otherwise, however:

WAC 173-501-070 Exemptions. (1) Nothing in this chapter shall affect existing water rights, perfected riparian rights, federal Indian and non-Indian reserved rights, appropriative or otherwise existing on the effective date of this chapter, nor shall it affect existing rights relating to the operation of any navigation, hydroelectric, or water storage reservoir or related facilities. (2) Single domestic, (including up to 1/2 acre lawn and garden irrigation and associated noncommercial stockwatering) shall be exempt from the provisions established in this chapter, **except that Whatcom Creek is closed to any further appropriation, including otherwise exempted single domestic use. For all other streams, when the cumulative impact of single domestic diversions begins to significantly affect the quantity of water available for instream uses, then any water rights issued after that time shall be issued for in-house use only, if no alternative source is available.** (3) Nonconsumptive uses which are compatible with the intent of this chapter may be approved. [Statutory Authority: RCW 90.54.020 (3)(a) and 90.54.040 (1) and (2). 85- 24-073 (Order 85-19), § 173-501-070, filed 12/4/85.] [**emphasis added**]
Source: <http://leg.wa.gov/CodeReviser/WACArchive/Documents/2013/WAC-173-501-CHAPTER.pdf>

The emphasized language in the exemption section of WAC 173-501 does not appear in RCW 90.44.050, so it is not strictly correct that DOE gave no thought to permit-exempt uses, in that the rule explicitly provides for an exemption that is based on, but not entirely the same as, the statute.

The costs to people and the benefits to fish of the *Hirst* decision:

The costs:

194 As a consequence of being unable build homes on parcels they own that are located in areas of the
195 county zoned for residential use, thousands of property owners saw the value of their properties plummet.
196 The county assessor stated he would reduce the valuation of the properties for tax assessment purposes, to a
197 rate 60% to 70% less than that of their pre-Hirst valuation for one group of 2,291 parcels, and between 20%
198 and 30% for a second group of 1,170 parcels.

199 A spreadsheet of the fiscal impact of Hirst has been generated by the assessor, found here:

200 <http://www.thefourthcorner.com/assessors-report/>

201 [NOTE: in the format presented, this sheet may be difficult to read]

202 The net result: Loss of assessed valuation: \$186,149,412

203 Tax shortfall (what assessor calls make-up tax): \$2,197,161: this is the additional amount that must
204 be collected from the rest of the taxpayers to achieve the same revenue stream for the county.

205

206 Property owners unsatisfied with the assessor’s revised valuation could appeal his decision to the
207 board of equalization. They might have strong arguments to have their property values reduced to near
208 zero. Without the ability to build on a parcel zoned rural residential, the values of the range of permitted
209 uses would be quite limited. It should be noted, however, that the *Hirst* decision did not in any way amend
210 or invalidate DOE’s water supply rule WAC 173-501, so property owners could still drill a permit-exempt
211 well and use it for the other exempted purposes, such as stock watering and small-scale non-commercial
212 irrigation. The value of doing so would depend upon the revenue that could be generated by such activities;
213 in the case of non-commercial irrigation, the value would likely be zero.

214 Note one key aspect of the results of these calculations: the estimated reduction in county tax
215 revenues will not actually take place. Rather, the county will adjust everyone else’s tax rates upward to
216 achieve the same total revenue amount as it would have prior to *Hirst*. So while the financial impact of
217 *Hirst* will fall most heavily on those property owners who can’t build, it will fall on all county taxpayers to
218 the extent necessary to make up the tax revenue shortfall. It can be expected that many county residents
219 won’t fuss, since by reducing the number of available building lots, the value of existing residences will
220 increase – the anti-growth folks know a good thing when they see one.

221 But the overall long-term impact to the local economy of increasing per capita tax rates will be
222 negative. More money that goes to taxes means less consumers will have to spend on everything lese,
223 including locally produced items so favored by many.

224

225 What are the benefits of *Hirst* to stream flow?

226 In short, they are negligible, at best. The amount of water that permit-exempt wells installed over
227 the next 20 years would consume, an amount carefully estimated to be less than 1.0 cfs distributed over all
228 of WRIA 1, is not sufficient to cause any meaningful impact on streamflow.

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231 **The WRIA 1 Planning Unit and Initiating Governments respond to ESSB 6091 aka RCW 90.94.**

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233 After failing to agree on a “*Hirst* fix” in the 2017 legislative sessions, in early 2018 the legislature
234 adopted ESSB 6091, later codified as RCW 90.94 (hereinafter, the statute). The relevant section of RCW
235 90.94 that applies to WRIA 1 is RCW 90.94.020.

236

237 Water Availability vs Streamflow Restoration:

238 The legislature saw fit to title ESSB 6091 “Water Availability.” Ecology later retitled the same bill
239 “Streamflow Restoration.” The retitling appears to be an exercise in Orwellian doublethink.

240

241 The legislation required the WRIA 1 Planning Unit and Initiating Governments to:

242 Estimate the number of new domestic wells that would serve new households over the next 20
243 years;

244 Estimate the amount of consumptive use by these wells, which means the total amount of water
245 pumped by a given well, less the amount that returns to the ground in the form of septic systems via indoor
246 water use and infiltration/recharge from outdoor water use;
247 Estimate the amount of consumptive use that reduces streamflow;
248 Identify projects that would offset the consumptive use by putting the amount of water all the wells
249 would take from the streams back into stream by some verifiable means;
250 Provide for a Net Ecological Benefit (NEB), which meant, according to Ecology’s interpretation,
251 that the selected projects would return more water to streams than the quantity taken by the wells, plus other
252 ecological enhancements like fish habitat improvements.
253 Incorporate these results into an update to the existing WRIA 1 watershed management plan.
254

255 While the intent of the legislature may have been well meaning, the consequences of the attempt to
256 implement the legislation in WRIA 1 were not.

257 First problem, time frame too short: while it took the IGs and PU, then acting in concert, to develop
258 the watershed plan, the legislature gave them only one year to complete the update.

259 Second problem, power struggle between PU and IGs left unresolved: the statute did nothing to
260 resolve the power struggle between the Planning Unit (PU) and the Initiating Governments (IGs). In 2009
261 the IGs suspended PU activities, in effect seizing total control of the watershed planning process, which
262 some PU members believe to have been (and continues to be) illegal. Thereafter the IGs made significant
263 amendments to the watershed management plan while claiming with a straight face that those amendments,
264 which by law and by the provisions of the existing plan, should have been reviewed and approved by the
265 PU, were just “implementations” of the existing plan. The IGs continue to maintain that charade to this day.

266 Instead, the statute called out a separate role for the IGs by name, which some might see as a state-
267 level legitimization of at least some aspects of the validity of the IGs acting as a separate entity, despite the
268 fact that Watershed Planning Act, which brought the respective roles of planning units and IGs into
269 existence, made no such provision.

270 To complicate matters, despite making the split between the IGs and the PU worse by seemingly
271 accepting it as an acceptable status quo, the statute required the IGs and the PU to collaborate in developing
272 a watershed plan update that would achieve the statute’s objectives as stated above.

273 The division of the IGs (and their staffs) from the PU made the process almost impossible. The
274 watershed plan was developed by the staffs and PU members working together closely throughout the six-
275 year process that led to the plan’s unanimous adoption in 2005. By contrast, during the 2018 effort to
276 comply with the planning requirements of ESSB 6091, the IG staff operated separately and in isolation
277 from the PU.

278 Further, the plan update approval process sequence that the staff shoved down the throat of the PU,
279 in which the IGs acted through a separate set of meetings from which the PU was explicitly excluded from
280 participation (the so-called WRIA 1 Watershed Management Board), guaranteed to exacerbate the existing
281 conflict between the PU and the IGs.

282 Since the IGs and the PU had been at odds since the PU’s restart in 2013, the chances of such
283 collaboration being fruitful were slim to none from the beginning, but both entities made an effort to
284 comply. (In so doing, the level of sincerity of each is open to question).

285 Against all odds, the PU and the IGs accomplished all but the last two objectives: providing NEB,
286 and achieving consensus on a watershed plan update. Unfortunately, this result was equivalent to an eight-
287 foot leap over a ten-foot ditch.

288 Reviewing the particulars of the failures, and the role Ecology’s representative played in them, are
289 instructive.

290 An artificially shortened time frame: The first blow Ecology struck came when, relatively late in the
291 process, its representative to the PU announced that while the statutory deadline for final state-level
292 approval (by Ecology) of the plan update had been set at February 1, 2019, in order for Ecology to have
293 sufficient time to review and approve it, Ecology set a tighter deadline for the IGs/PU to complete the plan
294 update of mid-December 2018. The statutory deadline was short enough; lopping off another month and a

295 half made the process all the more difficult. If Ecology had made its announcement in that regard early on
296 in the process, perhaps the schedule could have been adjusted accordingly. Waiting until after mid-year to
297 do so many PU members saw as unhelpful, at best. Overall, this additional contraction in the time line,
298 which some PU members felt was unauthorized, and most felt was unreasonable, would play a major role
299 in the failure to approve a plan update.

300 The Net Ecological Benefit (NEB) fail: Late in the process, a member of the IGs staff delivered a
301 report that purported to be an analysis of NEB and the impact of projected streamflow reductions on
302 salmonid populations. The PU had not requested, nor had it been expecting, such a report. At such, the
303 report was sprung on the PU at the last minute without warning. The credentials of the report's author were
304 called into question by some PU members. (A PU members' request for the CVs of the IG staff was
305 ignored.) The report used faulty assumptions to draw the most negative possible picture of the impact of
306 new domestic wells on streamflow, hence on salmonids. The PU panned the report. Some IG staff found
307 fault with the report as well. Nevertheless, the IGs staff included it, verbatim, in its draft update to the
308 watershed plan.

309 The staff plan update fail: After delivering its draft of the update to the PU at literally the last
310 minute, most of the staff left on winter break, which meant that there was no way to reconcile the staff's
311 version of the update with one that had been developed independently by the PU. In doing so, in effect the
312 staff said to the PU: take our version or else. And of course without their staff's approval of the final
313 product, the IGs weren't going to accept the PU's version, so there was, by early December, no viable
314 pathway by which a plan update could be approved by all parties.

315 Despite this seeming deadlock, the PU continued to work on its version of the plan update, ignoring
316 the Ecology-imposed shorter deadline. The PU's vote on the member-developed plan update did not take
317 place until January 2019, after the Ecology-imposed deadline had expired.

318 Most relevant to this discussion, the PU's proposed plan update kept the statutory rates, of 3,000
319 gpd indoor use and 1/2 acre outdoor irrigation.

320
321 The final blow to the PU's plan update delivered by Ecology's representative to the PU:

322 During the final vote on the PU's version of the plan update, Ecology's representative to the PU –
323 after a constant series of abstentions and recusals in all prior PU votes – cast a no vote without first
324 observing the PU's rules (found in the PU's Process and Procedural Agreement, Section 4.1). Said rules
325 were crafted by the PU's original facilitators precisely in order to thwart such last-minute sabotage of the
326 planning process. These rules require stating the concerns of the member intending to vote no, and offering
327 alternatives, to give the PU an opportunity to amend the proposal so that the body could achieve unanimous
328 approval. Since all government representatives to the PU have veto power, the Ecology no vote killed the
329 plan update.

330 Ecology's approach to their proposed amendment to the WRIA 1 instream flow rule should be
331 viewed in the context as set forth above.

332
333 Is there a policy bias in Ecology's use limits in the proposed rule amendment?:

334 As demonstrated elsewhere herein, Ecology has failed to provide any specific justification for its
335 proposed use rates, which reduce the statutory limits of 3,000 gpd indoor use and 1/2 acre outdoor
336 irrigation to 500 gpd indoor use and 1/12 acre outdoor irrigation. Both of these reduced rates represent one-
337 sixth of the statutory rate.

338 As shown elsewhere herein, if Ecology kept the statutory use rates it could still achieve what the
339 law requires, which is full offset of all water use by exempt wells drilled over the next 20 years, and
340 provide Net Ecological Benefit. And this result could be achieved under exactly the same terms and
341 conditions that Ecology used to arrive at its proposed use rates, which are one-sixth those of the statutory
342 rates.

343 So, what is the real reason Ecology chose the 500 gpd indoor use and 1/12 acre outdoor irrigation
344 rates? During the 2018 plan update process, the local tribes, City of Bellingham, and those interests which
345 oppose further rural residential and business development, made it very clear they wanted drastic use rate

346 reductions. And, as documented above, at the last minute Ecology's representative to the PU spiked the
347 PU's attempt to pass a plan update. Taken together, these actions suggest that perhaps Ecology has adopted
348 these proposed use rate reductions simply to cater to the minority interests who want them.
349

350 The coming General Stream Adjudication:

351 The amount of water the next 2,150 homes build in the rural parts of WRIA 1 will consume is a tiny
352 and, in the context of the overall water budget, insignificant fraction of the amount of water currently
353 consumed, over 90 percent of which is used by commercial irrigators. From the perspective of rational
354 water management policy, to place so much emphasis and effort into addressing the least significant sector
355 of water consumption made no sense from the beginning. It shows how much irrational damage that some
356 fanatical interest groups can do to the body politic and its decision making process.

357 The waste of time and other resources will take on a tragic aspect when a General Stream
358 Adjudication starts in WRIA 1, which knowledgeable observers anticipate beginning early 2021.
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366 This section of this document addresses three primary questions:

367 1.0. What does the statute (ESSB 6091, codified as RCW 90.94) require Ecology to do with respect
368 to rulemaking? In attempting to answer this question, this section will raise ancillary questions and, to the
369 extent useful in illuminating an answer to the primary question, these ancillary questions will be addressed.370 2.0. In its proposed rule amendment, has Ecology exceeded its authority under the statute, or in the
371 obverse, failed to fulfill all of its obligations under the statute?

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374 **1.0. What the statute provides regarding rulemaking:**

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376 RCW 90.94.020 provides:

377 (6) Rules adopted under this chapter or under chapter [90.54](#) RCW may:378 (a) Rely on watershed plan recommendations and procedures established in this section to
379 authorize new withdrawals exempt from permitting under RCW [90.44.050](#) that would potentially
380 impact a closed water body or a minimum flow or level;

381 (b) Rely on projects identified in the watershed plan to offset consumptive water use; and

382 (c) Include updates to fees based on the planning unit's determination of the costs for
383 offsetting consumptive water use.384 (7)(a) If a watershed plan that meets the requirements of this section is not adopted in **water**
385 **resource inventory area 1 (Nooksack)** by February 1, 2019, the department must adopt rules for
386 that water resource inventory area that meet the requirements of this section by August 1, 2020.

387 ...

388 (8) This section only applies to new domestic groundwater withdrawals exempt from permitting
389 under RCW 90.44.050 in the following water resource inventory areas with instream flow rules adopted
390 under chapters 90.22 and 90.54 RCW that do not explicitly regulate permit-exempt groundwater
391 withdrawals: **1 (Nooksack); ... and does not restrict the withdrawal of groundwater for other uses that**
392 **are exempt from permitting under RCW 90.44.050. [emphasis added]**393 <https://app.leg.wa.gov/RCW/default.aspx?cite=90.94.020>

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396 **1.1. Scope of the Rule amendment:**

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398 Ecology's summary of the intent of the statute, as stated in STREAMFLOW RESTORATION POLICY
399 AND INTERPRETIVE STATEMENT dated July 31 2019, hereinafter **POL2094**.400 <https://apps.wr.ecology.wa.gov/docs/WaterRights/wrwebpdf/pol-2094.pdf>

401

402 "Plans must be developed that identify projects to offset the potential consumptive impacts of new
403 permit-exempt domestic groundwater withdrawals on instream flows over the next 20 years (2018-2038),
404 and provide a net ecological benefit to the WRIA." [**POL2094**, page 1]405 Presumably, then, the rule amendment should accomplish the same purpose as the statute's purpose,
406 nothing more, nothing less.

407

408 **1.1.1. To which of the four exemptions does RCW 90.94.020 apply?**

409 RCW 90.44.050 provides for four classes of exemptions relevant to this issue, as follows:

410 1. ...any withdrawal of public groundwaters for stock-watering purposes [implies without
411 limit as to quantity or place of use, an interpretation reinforced by recent court cases];412 2. ... for the watering of a lawn or of a noncommercial garden not exceeding one-half acre
413 in area (implies no quantity limit);

- 414 3. ... for single or group domestic uses in an amount not exceeding five thousand gallons a
415 day,
416 4. ... or for an industrial purpose in an amount not exceeding five thousand gallons a day,
417 <https://app.leg.wa.gov/RCW/default.aspx?cite=90.44.050>
418

419 Ecology's interpretation is described in **POL2094**, page 4: "The requirements in RCW 90.94.020 and
420 90.94.030 only pertain to permit-exempt domestic withdrawals associated with a new building permit, and
421 do not affect other uses exempt from permitting under RCW 90.44.050."
422

423 And ...

424 Chapter 90.94 RCW includes restrictions for new permit-exempt domestic withdrawals for
425 "domestic use" to a maximum annual average of up to 950 GPD per connection in basins planning under
426 RCW 90.94.030, and a maximum annual average of up to 3,000 GPD per connection in basins planning
427 under RCW 90.94.02011.

428 □ In the context of chapter 90.94 RCW, "domestic use" and the GPD withdrawal limits include
429 both indoor and outdoor home uses, and watering of a lawn and noncommercial garden up to ½ acre in
430 size." [**POL2094**, page 5]
431

432 Some legislators have criticized Ecology's inclusion of the exemption for "watering of a lawn and
433 noncommercial garden up to ½ acre in size," as unlawful. As an example, this letter argues, relying on a
434 citation from the statute:

"This section only applies to new *domestic* groundwater withdrawals exempt from permitting
under RCW 90.44.050 . . . and does *not* restrict the withdrawal of groundwater for *other uses*
that are exempt from permitting *under* RCW 90.44.050."¹

435 and
436

This provision refers to RCW 90.44.050, where the meaning of an exempt domestic withdrawal
is provided. That statute creates distinct categories of exempt uses, including a category for
"domestic" use and another for noncommercial lawns and gardens of a certain size. The
Washington Supreme Court confirmed this interpretation in *Five Corners Family Farmers v.*
State, where it said that the exemption clause of RCW 90.44.050 breaks down into distinct
categories, including any withdrawal of public groundwaters "for single or group *domestic* uses
in an amount not exceeding five thousand gallons a day," *or* "for the watering of a lawn or of a
noncommercial garden not exceeding one-half acre in area."² The legislature chose to apply
RCW 90.94.020 to *domestic* uses, but not to other uses that are exempt under RCW 90.44.050,
such as the watering of a noncommercial lawn or garden. RCW 90.94.020 does not authorize the
department to restrict water use for noncommercial lawns and gardens.

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State Senator Doug Ericksen, 42nd Legislative District, letter dated Dec 4 2019 to Ecology staff Annie Sawabini.

Ecology has offered an oblique response in **SupportingDoc11-093**, beginning page 11:

"Ecology has heard many different opinions and perspectives regarding the Legislature's intent when it used the term "domestic use" and other terms ("new water use" and "consumptive use") in the 2018 legislation. Ecology is implementing the law as it is written, and harmonizing its numerous sections. To ensure transparency, consistency, and conformity in implementing the law, Ecology has published a Policy and Interpretive Statement (POL-2094)¹³ that includes how we interpret "domestic use" in the MAA limit and other terms not defined in chapter 90.94 RCW.

"Harmonizing the expressly written sections in chapter 90.94 RCW, Ecology interprets "domestic use" in the MAA withdrawal limits to include both indoor and outdoor home uses, including watering of a lawn and noncommercial garden up to 1/2 acre in size."

453 Note that while Ecology reiterated its position, it did nothing to address the concern raised by the
454 legislators. Its failure to do so invites litigation to settle the issue.

455
456 Specific questions and observations regarding Ecology’s response to the validity of including lawn
457 irrigation exemption in its definition of “domestic:”

458 If, as Ecology claims, the statute does not define domestic use, then on what basis did Ecology
459 define it to include lawn irrigation?

460 On what statute, rule, or commonly accepted practice did Ecology base its “harmonizing” the
461 numerous provisions of the statute? Nothing in RCW 90.94, or the Administrative Procedures Act, or other
462 statute or rule appears to define the concept of “harmonizing” or make provision for its exercise.

463 Note, for example, that the legislature appears to have intended the scope of rulemaking authority to
464 be limited to specific provisions of the statute, except in some identified circumstances:

465 The Administrative Procedures Act, at RCW 34.05.322 Scope of rule-making authority.

466 For rules implementing statutes enacted after July 23, 1995, an agency may not rely solely on the
467 section of law stating a statute’s intent or purpose, or on the enabling provisions of the statute establishing
468 the agency, or on any combination of such provisions, for its statutory authority to adopt the rule. An
469 agency may use the statement of intent or purpose or the agency enabling provisions to interpret
470 ambiguities in a statute’s other provisions. <https://app.leg.wa.gov/RCW/default.aspx?cite=34.05.322>

471
472 **1.2. Ecology’s interpretation of rulemaking actions required by the statute:**

473 “If a watershed plan has not been adopted by the prescribed deadline, Ecology is required to
474 commence a rulemaking process under RCW 90.94.020 ...

475 Ecology will not write a watershed plan update for WRIAs identified in RCW 90.94.020. As
476 required under the law, Ecology will initiate rulemaking and develop rule supporting documents that meet
477 the intent and requirements of RCW 90.94.020. At a minimum, the rule supporting documents will include:
478 a WRIA-wide estimate of consumptive use from new permit-exempt domestic withdrawals over the
479 planning horizon; a list of projects and actions that Ecology is reasonably assured could be completed to
480 offset the consumptive use; and a NEB determination.” [POL2094, page 11]

481
482 **1.3. Net Ecological Benefit (NEB) Determination:**

483 The statute, at RCW 90.94.030(4)(c) states the following regarding NEB:

484 (c) Prior to adoption of the updated watershed plan, the department must determine that
485 actions identified in the watershed plan, after accounting for new projected uses of water over the
486 subsequent twenty years, will result in a net ecological benefit to instream resources within the water
487 resource inventory area. <https://app.leg.wa.gov/RCW/default.aspx?cite=90.94.020>

488
489 Since the legislature did not provide an explicit definition of “Net Ecological Benefit,” Ecology issued a
490 guidance document that addressed the issue, as follows:

491 **Interim Guidance for Determining Net Ecological Benefit**, June 2018, Publication 18-11-009

492 This document is available on the Department of Ecology’s website at:

493 <https://fortress.wa.gov/ecy/publications/summarypages/1811009.html>

494
495 The **Interim Guidance** document, at page 2, states, with respect to what local information
496 planning groups should rely, and presumably upon which Ecology will rely, regarding determination of
497 NEB: “Information on local conditions is crucial to understanding how to achieve NEB for individual
498 watersheds. NEB evaluations should make use of available information on watershed-specific factors
499 including: hydrogeology, stream flow conditions, fish populations and life histories, current habitat
500 conditions, water use demand, and local salmon-recovery efforts. Ecology’s evaluation of NEB will
501 incorporate existing information on watershed-specific factors that are addressed during the planning
502 process and rely heavily on input from local, state, federal and tribal resource managers, and water
503 resources stakeholders participating in the planning process.”

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And: “Plans submitted for approval should provide structured and transparent accounting that itemizes and compares projected impacts against recommended offsetting projects for use in the NEB evaluation. The impacts from future domestic permit-exempt water use and the effects of planned offset projects should be quantified whenever possible. When necessary, the benefits of some types of offsets may be evaluated qualitatively. Uncertainty of benefits should be identified and quantified to the extent possible. Plans should demonstrate scientific rigor, and include documentation and justification of key scientific methods used. **Interim Guidance** document, Page 3.

The **Interim Guidance** document states: “When addressing NEB, plans should address the following elements, as discussed in more detail below:

...

4. Provide a narrative description and quantitative evaluation (to the extent practical) of the net ecological effect of the plan.” **Interim Guidance** document, page 4.

Elsewhere in the same document, we find:

“Descriptions of All Water and Non-Water Offset Projects

To properly characterize benefits to instream resources, plans should list and describe each habitat project with the following information when available:

- Information on the proposed project that includes a narrative description and a quantitative and/or qualitative assessment of how the project will contribute to NEB.” **Interim Guidance** document, page 7.

Further on the same document, Ecology elucidates the requirements of Element 4 of NEB:

“Element 4

Provide a narrative description and quantitative evaluation (to the extent practical) of the net ecological effect of the plan.

“Ecology’s expectation is that plans will provide a transparent, structured evaluation to be used in Ecology’s NEB analysis to determine whether the requirement in ESSB 6091 has been met. If the planning group concludes that the planned projects recommended in the plan will achieve NEB, the plan should include a clear explanation and justification for that conclusion.

“Plan components to be used in the NEB analysis:

- May be structured in the form of a ledger or matrix that describes all the impacts and offsets in detail and sums up the net ecological effect.

- Should describe the scale at which the plan is designed to achieve success (e.g., subbasin or WRIA).

- Should include a description of the projected impact to instream flows that will not be offset through replacement of water. To the extent possible, describe this projected flow impact in terms of ecological impact to instream resources.

- Should include a description of how the recommended projects and actions will offset the total projected new consumptive domestic permit-exempt water use over the subsequent 20 years throughout the watershed.

- Should address the feasibility of plan implementation. This includes what is known about funding available under ESSB 6091 and other funding sources. The plan should also prioritize projects for funding and clearly identify the group of projects and actions that must be funded to achieve NEB.”

Interim Guidance document, page 8.

Excerpts re NEB in Ecology’s rulemaking **SupportingDoc11-093**:

SupportingDoc11-093, Page 9:

“The law allows new permit-exempt domestic wells to have an impact on closed water bodies and water bodies with minimum instream flows. It also requires planning efforts in 15 Water Resource

555 Inventory Areas (WRIAs) to develop watershed plan updates² or watershed restoration and enhancement
556 plans³ to project consumptive use by new domestic permit-exempt wells over the next 20 years, and
557 identify projects and actions to offset those impacts in order to achieve a net ecological benefit (NEB) for
558 the WRIA. Streamflow restoration projects and actions are to be prepared with implementation in mind.”
559

560 **SupportingDoc11-093, Page 39**

561 “Ecology’s 2018 Interim Guidance on Determining Net Ecological Benefit gives a number of
562 examples of projects that can provide water offsets and habitat benefits including retiming water from the
563 high flow to the low flow seasons. However, many of the stream management units in WRIA 1 have partial
564 or year-round closures listed in WAC 173-501-040(1), making water unavailable for these types of
565 retiming projects.”
566

567 **SupportingDoc11-093, begins page 58:**

568 Chapter 9 – NEB Determination

569 “RCW 90.94.020(4)(c) states that prior to adoption of an updated watershed plan: “...the
570 department must determine that actions identified in the watershed plan, after accounting for new projected
571 uses of water over the subsequent twenty years, will result in a net ecological benefit to instream resources
572 within the water resource inventory area.” RCW 90.94.020(7)(b) further states that if a watershed plan that
573 meets the requirements of this section is not adopted, “the department must adopt rules for that water
574 resource inventory area that meet the requirements of this section by August 1, 2020.” This chapter
575 provides Ecology’s analysis and determination on whether the NEB requirement is met.

576 “In June 2018, Ecology issued Interim Guidance for Determining NEB³⁶ (Interim Guidance) to
577 assist Streamflow Restoration planning groups on expedited planning tracks, including WRIA 1. This is the
578 guidance Ecology previously established would be used to evaluate NEB in a WRIA 1 watershed plan
579 update or a rulemaking. This guidance states:

580 A net ecological benefit determination means anticipated benefits to instream resources from actions
581 designed to restore streamflow will offset and exceed the projected impacts to instream resources from new
582 water use.

583 “The Interim Guidance goes on to provide guidance on the process and information Ecology will
584 use to evaluate NEB. The guidance describes the following four elements to the analysis and evaluation: 1)
585 estimate 20 years of new domestic permit-exempt water use; 2) describe and evaluate offset projects; 3)
586 describe how the planned projects and actions are linked or coordinated with other existing plans and
587 actions, and 4) provide a description and evaluation that the projects and action will achieve NEB.”
588

589 **SupportingDoc11-093, Page 60:**

590 9.2.2 Ecology’s Project List

591 “Ecology leaned heavily on this list of locally-approved projects and actions for achieving offsets
592 for projected consumptive use impacts and achieving a net ecological benefit.

593 “As discussed in Chapter 6, Ecology reviewed and identified a suite of projects from the WRIA 1
594 planning effort’s list of approved projects that Ecology believes, once implemented, offer a reasonable
595 assurance that the consumptive use impacts of new domestic permit-exempt wells from 2018-2038 will be
596 offset on the WRIA scale. In total, Ecology’s project list provides an estimated 3,767 acre-feet per year of
597 offset water. This is an order of magnitude greater than 390 acre-feet per year, Ecology’s estimate of the
598 volume needed to offset impacts from 20 years of domestic permit-exempt wells, including the 1.5 safety
599 factor. In addition to the offset benefits, many of these projects provide habitat improvements at specific
600 project locations.”
601

602 **SupportingDoc11-093, Page 63:**

603 9.4 NEB Description and Evaluation

604 “The fourth element of the Interim Guidance discusses providing a description and evaluation that
605 the projects and actions will achieve NEB.
606

607 9.4.1 Comparison of Aggregated Subbasin Summer Low Flow and Consumptive Use

608 “Comparisons of the impacts from new domestic permit-exempt wells versus offsets need to
609 consider both the flow benefits and habitat benefits associated with the offset projects and actions. It is
610 important to recognize the relative scale of the impacts and offsets. WRIA-wide, Ecology calculated a
611 projected offset requirement of 390 acre-feet per year for the consumptive uses associated with new
612 domestic permit-exempt wells during the 2018 – 2038 timeframe, including the 1.5 safety factor. This
613 converts to an average continuous flow of 0.54 cfs across the entire watershed. If new domestic permit-
614 exempt wells are concentrated in a small area, the impacts could represent a high flow percentage of a
615 small stream. However, new domestic permit-exempt wells will most likely be distributed at a low
616 concentration throughout the watershed, and the effect of new uses at any one specific location will likely
617 be quite small.”

618

619 **SupportingDoc11-093, Page 67:**

620 “All of the water-offset projects will provide an ecological benefit to the watershed over and above
621 what is needed to offset new consumptive uses. Additional projects that improve habitat and instream
622 resources and provide additional ecological benefit to the watershed are on the project list. Ecology’s
623 adaptive management approach will enable adjustments and course corrections over time and establishes an
624 approach to incorporate new information as well as new projects and actions. At the aggregated subbasin
625 scale, new consumptive uses will likely be a fraction of one percent of the existing summer low flow, and
626 in two-thirds of the aggregated subbasins, will be offset many-fold by the projects identified in Chapter 6.”

627

628 **1.3. Upshot regarding NEB:**

629 What Ecology did not provide, in either its **Interim Guidance** document, or in **SupportingDoc11-**
630 **093**, is an explicit threshold determination of how much additional water offset in any given subbasin, or in
631 the WRIA as a whole, would be required to meet NEB, nor did it provide such a threshold for non-water
632 projects such as habitat improvements. For a given subbasin, would 1 additional gallon per day over and
633 above the full offset provide adequate NEB? One supposes not, but then, Ecology does not appear to
634 explicitly address what it determined to be the lower limit of a valid NEB amount, if it made such a
635 determination at all.

636 In the case of WRIA 1, Ecology can be excused for skirting the threshold determination issue
637 because it did not need to do so.

638 As cited above in **SupportingDoc11-093**, in Ecology’s own words:

639

640 WRIA-wide streamflow impacts and offsets:

641 “... Ecology reviewed and identified a suite of projects from the WRIA 1 planning effort’s list of
642 approved projects that Ecology believes, once implemented, offer a reasonable assurance that the
643 consumptive use impacts of new domestic permit-exempt wells from 2018-2038 will be offset on the
644 WRIA scale. In total, Ecology’s project list provides an estimated 3,767 acre-feet per year of offset water.
645 This is an order of magnitude greater than 390 acre-feet per year, Ecology’s estimate of the volume needed
646 to offset impacts from 20 years of domestic permit-exempt wells, including the 1.5 safety factor. In
647 addition to the offset benefits, many of these projects provide habitat improvements at specific project
648 locations.”

649

650 Basin-specific streamflow impacts and offsets:

651 “... If new domestic permit-exempt wells are concentrated in a small area, the impacts could
652 represent a high flow percentage of a small stream. However, new domestic permit-exempt wells will most
653 likely be distributed at a low concentration throughout the watershed, and the effect of new uses at any one
654 specific location will likely be quite small.”

655

656 **1.3.1. Net result for NEB, as stated by Ecology:**

657 “All of the water-offset projects will provide an ecological benefit to the watershed over and above
658 what is needed to offset new consumptive uses. Additional projects that improve habitat and instream
659 resources and provide additional ecological benefit to the watershed are on the project list. ... ”
660
661

662 **1.4. Basis in law for the proposed rule amendment’s use reductions:**

663 Ecology’s proposed amendment to WAC 173-501 calls for a reduction in indoor use from 3,000
664 gpd to 500 gpd, and a reduction in outdoor watering from 1/2 acre to 1/12 acre. Both of these reductions are
665 by a factor of six. (There is nothing in particular, stated or implied, in any of Ecology’s documents, to
666 suggest that the equivalence in reduction factors is anything but a coincidence.)

667 Since Ecology has identified projects that, if implemented over the 20 years, would offset
668 consumptive use, and provide NEB, and by an order of magnitude greater than Ecology’s estimated
669 streamflow impacts, why does Ecology proposed to reduce indoor and outdoor use by a factor of six?

670 Ecology’s **SupportingDoc11-093** describes its use reductions as follows:

671 4.2.1 Consumptive Use Calculation

672 “To calculate the consumptive use of new domestic permit-exempt wells in WRIA 1 from 2018-
673 2038, Ecology made slight adjustments to the original RH2 spreadsheet input parameters to reflect
674 proposed rule conditions. Adjustments to the spreadsheet included modifying the outdoor domestic
675 irrigation area limit to 1/12 acre for non-commercial lawns and gardens, consistent with the proposed rule.”

676 And:

677 “Assuming 2,150 new homes throughout the watershed, an average of 2.56 persons per home
678 (153.6 GPD indoor use), and an anticipated maximum outdoor watering footprint of 1/12 acre (0.083
679 acres), results in 260 acre-feet per year of consumptive use for WRIA 1 ... ” **SupportingDoc11-093**, pages
680 28 – 29.

681 A big problem here is that Ecology appears to have worked the problem backwards: it set the use
682 rates at 500 gpd indoor and 1/12 acre outdoor, then computed what the total consumptive use would be
683 under those conditions. The calculations may be correct, but their results do not justify the use rate
684 reductions; those results merely show what the outcome would be if those use rate reductions were adopted
685 in the rule. In taking this approach, Ecology appears to have confused an explanation with a justification.

686 Thus, the key question remains, *why* did Ecology choose to reduce the outdoor use area by a factor
687 of six? **SupportingDoc11-093** appears to provide no answer to this central question.
688

689 Exploring **SupportingDoc11-093**, further, we find:

692 4.2.3 Comparison of the Total Offset with a Maximum Use Scenario

693 “For comparison’s sake, Ecology thought it would be helpful to understand the hypothetical offset
694 required if every new domestic permit-exempt well used the maximum volume legally available to it over
695 the next 20 years (“maximum use scenario”). To calculate the maximum consumptive use, Ecology
696 presumed full use of the indoor withdrawal limit of 500 GPD per new domestic permit-exempt well
697 established in the proposed rule amendment language (500 GPD every day for every new domestic permit-
698 exempt well).

699 “To evaluate how assuming the maximum indoor water use for all new domestic permit-exempt
700 wells impacts the consumptive use offset calculations, a consumptive use volume was calculated assuming
701 2,150 new homes, an indoor water use of 500 GPD, and an outdoor irrigation footprint of 1/12 of an acre
702 for every new home. The result is a total consumptive use volume of 343 acre-feet per year for WRIA 1.
703 The majority of consumptive use associated with each new home is associated with the outdoor water use.
704 As noted above, indoor water use is typically only 10 percent consumptive, while outdoor use is 80 percent
705 consumptive. Tripling the indoor use rate from an average of 153.6 to the maximum 500 GPD, basin-wide
706 in the calculations increases the offset required by 32 percent (83 acre-feet per year). This scenario’s
707 detailed results are included in Table 4.2.” **SupportingDoc11-093**, pages 29 – 30.

708 Ecology’s use of the phrase “thought it would be helpful to understand” the maximum use scenario
709 is puzzling. It would seem to be best practice to set the rule amendment’s use rates based on the maximum
710 use scenario, because while it might not be likely from year to year, it is possible. Doing so would have
711 provided a more solid rationale for the “safety factor” Ecology seems to have pulled out of thin air, thus:
712

713 4.2.2 Safety Factor to Calculate Total Offset

714 “In order to account for uncertainty, Ecology is applying a safety factor to the 260 acre-feet per year
715 consumptive use value. Adding a safety factor is consistent with county projections, the RH2 analysis, and
716 the planning process.

717 “Calculating the consumptive use volume required several assumptions related to: the number of
718 new homes constructed over the specified twenty-year period; the occupancy rate; per capita water use;
719 outdoor water use; efficiency of the use; the consumptive use fraction for all of this use; and the impacts of
720 this collective use on the instream resources.

721 “To address the uncertainty associated with each of these assumptions, Ecology chose to multiply
722 the calculated consumptive use volume in each aggregated subbasin by a factor of 1.5, creating a total
723 offset of 150%.

724 ...

725 “For the nine aggregated subbasins, the total volume required for the entire WRIA to offset new
726 consumptive uses with this safety factor is 390 acre-feet per year (consumptive use of 260 acre-feet per
727 year multiplied by 1.5).” **SupportingDoc11-093**, page 29.
728

729 But *why* a factor of 1.5, exactly? Ecology does not show any calculations or provide any specific
730 explanation why it derived the magnitude of that “safety factor.”
731

732 The remainder of Chapter 4 of **SupportingDoc11-093** contains substantial material calculating and
733 displaying results based on Ecology’s proposed use reductions, but we find nothing that answers either of
734 the questions posed above herein:

735 On what technical basis did Ecology decide on use reductions of a factor of six?

736 On what technical basis did Ecology select the “safety factor” of 1.5?

737 And a further question arises from the first two: why did Ecology not display the results of other
738 streamflow impact scenarios, like keeping 3,000 gpd indoor use and 1/2-acre outdoor use in place? How
739 much streamflow impact would that scenario entail?
740

741 The explanation for the use reductions offered by Ecology staff lead for the rulemaking, Annie Sawabini,
742 at the November 20 2019 WRIA 1 Planning Unit meeting [her statement begins at approximately Minute
743 28 in the meeting audio recording file], provides nothing beyond what is stated in **SupportingDoc11-093**,
744 “... so we looked at the range of options [at play in other WRIsAs] ... there is no one answer to this
745 question, but we get this balance of however much water people take out and use consumptively has to be
746 balanced by [inaudible] projects to offset that and provide net ecological benefit; that’s the standard we
747 have to achieve. So the more people use, the more offset we have to come up with. So, in understanding
748 that balance and understanding that not all offsets will be in time and in place, that’s not required by the
749 law. Frankly, it would be very hard to achieve ... we were looking to balance the use versus the offsets ...”.

750
751 Nothing in the foregoing statement answers the question of why the particular choice of 500 gpd indoor use
752 and 1/12 acre outdoor watering, versus, say 400 or 600 gpd indoor, and 1/10 acre outdoor ... or any other
753 figure for either use rate.
754

755 **1.4.1. Why not keep the existing use limits of 3,000 gpd indoor use, and 1/2 acre outdoor irrigation?**

756 Using the same assumptions, thought processes and methodology as set forth in **SupportingDoc11-**
757 **093**, consider the scenario where indoor use is kept at the statutory limit of 3,000 gpd, and the outdoor
758 irrigation area kept at 1/2 acre. Since both of these numbers are six times the limits Ecology proposes, to

759 calculate the maximum use scenario using those figures, simply multiply Ecology’s maximum use scenario
760 figure of 343 acre-feet per year by six, giving 2,058 acre-feet per year maximum use if the 2,150 new wells
761 were permitted to pump 3,000 gpd and irrigate 1/2 acre.

762 [Validation: The Distributive law of arithmetic provides as follows: $a(b + c) = ab + ac$

763 Source: <https://mathlair.allfunandgames.ca/lawssofarithmetic.php>

764 Thus, $6*(\text{total indoor use in afy}) + 6*(\text{total outdoor use in afy}) = 6*(\text{total indoor use in afy} + \text{total}$
765 $\text{outdoor use in afy})]$

766
767 According to **SupportingDoc11-093**, “In total, Ecology’s project list provides an estimated 3,767 acre-feet
768 per year of offset water.”

769 Applying the 1.5 safety factor to a maximum use rate by 2,150 wells, of 2,058 acre-feet per year as
770 calculated above, the result is 3,087 acre-feet per year, which leaves an excess of 680 acre-feet per year for
771 NEB. Note that by combining the safety factor with the maximum use rate, the likelihood is very high that
772 there will be excess offset water that could contribute to NEB provided within the 3,087 acre-feet per year
773 calculation.

774 These calculations demonstrate that Ecology, using its same thought process, could have chosen to
775 leave the existing water use limits and still have sufficient offset water to offset both the maximum use
776 scenario, plus the safety factor, plus excess to provide NEB.

777 **Thus the question remains, why did Ecology pick the use rates it did?**

778 779 **1.5. Potential Takings Clause Violations: Might cases such as *Armstrong*, *Lucas* and/or *Dolan* apply** 780 **to Ecology’s proposed use reductions?**

781 If Ecology’s proposed use reductions are adopted by the rule amendment, then the next 2,150
782 homes built in the rural areas of WRIA 1 will be deprived of a water use right that all those who put
783 domestic wells to beneficial use before them will continue to enjoy. Does such deprivation provide a cause
784 of action under case law involving the US Constitution’s Fifth Amendment prohibition against taking
785 private property for public use without just compensation (Takings Clause)?

786 In effect, new well owners will be asked to bear a burden that current well owners will not have to
787 bear. SCOTUS has interpreted the Clause to mean it is intended to uphold the principle that the government
788 should not single out isolated individuals to bear excessive burdens, even in support of an important public
789 good.

790 The most influential statement of this principle is found in *Armstrong v. United States* (1960),
791 where the Supreme Court wrote: “The Fifth Amendment’s [Takings Clause] . . . was designed to bar
792 Government from forcing some people alone to bear public burdens which, in all fairness and justice,
793 should be borne by the public as a whole.”

794 <https://constitutioncenter.org/interactive-constitution/interpretation/amendment-v/clauses/634>

795
796 Further, in the *Lucas* case (<https://www.law.cornell.edu/supremecourt/text/505/1003>) SCOTUS
797 found it a violation of the Takings Clause when a bureaucracy denied an individual a building permit even
798 though immediately adjacent property owners had had equivalent permits issued earlier. Lucas’ only fault
799 was in the timing of his application, which followed the imposition of shoreline rules designed to thwart
800 further development of the South Carolina coastline.

801 Further still, in the *Dolan* case (<https://supreme.justia.com/cases/federal/us/512/374/>), SCOTUS
802 found that the imposition of regulations the effects of which exceeded the impact(s) the regulation sought
803 to limit also violated the Takings Clause.

804 Of course, in the instant case, one can argue that water rights are fundamentally different from other
805 property rights, for at least two reasons. One, in the state of Washington, since 1945, ground water belongs
806 to the people of the state, and a water right granted to a permit applicant only allows the use of that water
807 under conditions set forth in the water right permit (which include continuous beneficial use, etc.). Second,
808 the state issues water rights based on the doctrine of prior appropriation, which provides that rights issued
809 earlier in time are senior to those issued later in time, regardless of type of beneficial use. Thus, it could be

810 argued that water users who come later in time, even those exempt from the requirement of applying for a
811 permit, are not necessarily entitled to the same treatment, especially in the instant case, where the implicit
812 basis is that there is some additional adverse impact to streamflow caused by new water users.

813 A cause of action might arise, however, if a plaintiff can show that the imposition of Ecology's
814 proposed use rates violates the principle set forth in *Dolan*. By showing, as has been done above herein,
815 that if the offsets and NEB required by the statute can be met for 3,000 gpd indoor use and 1/2 acre outdoor
816 watering, then the prospective homeowner/plaintiff's use at the higher rates causes no harm, and thus the
817 imposition of the rule exceeds the impact of the homeowner/plaintiffs water use.

818 Further, since Ecology appears to have plucked the use limits out of thin air, it leaves the rule open
819 to a facial challenge on the grounds it is both arbitrary and capricious.

820

821 **Sources consulted:**

822

823 WRIA 1 Planning Unit meeting proceedings for 2018, including especially November 20 2019:

824 Agenda: <https://drive.google.com/file/d/14TyICPgZFoUTwaCUiIVc-3MjdS0zW-te/view>

825 Meeting summary: <https://drive.google.com/file/d/1WNziqTrcr02keEdXkyjVcCDuqyazZ-Ek/view>

826 Audio recording of meeting: [https://drive.google.com/file/d/17-](https://drive.google.com/file/d/17-dHPN5QKw6KZF13sjMNKIiFg98D95oh/view)

827 [dHPN5QKw6KZF13sjMNKIiFg98D95oh/view](https://drive.google.com/file/d/17-dHPN5QKw6KZF13sjMNKIiFg98D95oh/view) [Sawabini comments begin at approx. Minute 28]

828

829 (ESSB 6091, codified as RCW 90.94 <https://app.leg.wa.gov/RCW/default.aspx?cite=90.94>

830

831 The state Administrative Procedures Act, RCW 34.05: <https://app.leg.wa.gov/rcw/default.aspx?cite=34.05>.

832

833 Ecology's **SupportingDoc11-093**

834

835 Ecology's STREAMFLOW RESTORATION POLICY AND INTERPRETIVE STATEMENT dated July
836 31, 2019; issued under the signature of Water Resources Manager Mary Verner.

837 From: <https://apps.wa.ecology.wa.gov/docs/WaterRights/wrwebpdf/pol-2094.pdf>

838

839 **Interim Guidance for Determining Net Ecological Benefit**, June 2018, Publication 18-11-009

840 This document is available on the Department of Ecology's website at:

841 <https://fortress.wa.gov/ecy/publications/summarypages/1811009.html>

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894**Problem 1.0. Invalid Implication that WAC 173-501 rule is being violated.**

Both **DraftSupportingDoc04** and **SupportingDoc11-093** make a conceptual error by implying that the instream flow levels set by WAC 173-501 are standards that are supposed to be met, like EPA's water quality standards, and, since stream flow levels are often below the flow limits set by the rule, especially in the low-flow months, somehow somebody (the county? water users, in general or in particular? or all residents of WRIA 1?) is violating state law.

DraftSupportingDoc04 states "Figure 3.1 illustrates the frequency that minimum instream flows are not met at the Ferndale gage over recent history. Data show increasing occurrence beginning in June and increasing thru September. This trend has prevented Ecology from approving new uninterruptible permitted water rights in WRIA 1." Page 10, while **SupportingDoc11-093**, page 19, makes the same statements but not in the same order.

That Ecology staff would make such misleading statements and the conceptual error upon which they are based should be surprising given that other Ecology staff have, on at least one formal occasion, made it clear that WAC 173-501 instream flow levels are not standards to be met.[]

Further, during the same 2014 presentation, Ecology staff stated that the purpose of the rule was to enable it to deny approvals for new uninterruptible permits, not the other way around – the gap between actual flow and the flows set by rule existed at the time the rule was first established.

An implication of these misleading statements: that WRIA 1 water users in general, and those responsible for water policy and practice in particular, are somehow in violation of the instream flow rule. Such implication is contradicted, inter alia, by Ecology's lack of an enforcement action relating to the condition cited in the statement.

Problem 2.0. Unsupported basis for comparisons with other WRIsAs. Within pages 19 through 21 of, Ecology reviewed instream flow rules in other WRIsAs. "In order to develop water use standards for new permit-exempt wells, Ecology looked at other water use standards, descriptions, and water reservation assumptions established for domestic permit-exempt wells in recent (post-2001) instream flow rules in other WRIsAs in Washington." (Page 19)

The reasons the Water Resource Act of 1971 directed the department to establish WRIsAs in the first place went far beyond the administrative convenience such aggregations provided. Each WRIA can have distinct characteristics, in hydrogeology, geomorphology, rainfall, glacial storage, flow regimes, water uses, and condition of fish populations. Even within a WRIA, the conditions can be widely divergent from sub basin to sub basin, or even within sub basins.

To justify looking at other WRIsAs Ecology should have presented findings that with respect to certain key parameters there are sufficient similarities among WRIsAs to warrant such comparisons.

SupportingDoc11-093 presents no such findings.

In at least some of those WRIsAs with which WRIA 1 has been compared, Ecology has relied on detailed modeling in developing its instream flow rules for those WRIsAs, and in making other policy determinations. If all of the WRIsAs Ecology mentions in **SupportingDoc11-093** are sufficiently similar to warrant the comparisons it makes in the document, why did it engage in separate, expensive, and time-consuming modeling for other WRIsAs, if it were not that each WRIA's parameters are sufficiently different to justify spending tax dollars to do so?

Further, Ecology admits (**SupportingDoc11-093**, page 22) that "The recent rules are also not uniform in their how they describe single and group domestic water use. **This variation is likely informed by local hydrogeological conditions, water availability, and local planning efforts prior to rulemaking.**"

[**Emphasis added**] This statement appears to confirm the nature of the problem described herein, and undermines the validity of the comparisons Ecology intended to make by bringing them up in the first place.

895 Finally, Ecology cites (**SupportingDoc11-093**, page 22) the Federal-approved Lummi Peninsula
896 Groundwater Settlement Agreement of 2009. The citation is inapposite because it was just that, a
897 negotiated settlement, not the result of unbiased scientific study. It therefore should bear no relevance to the
898 WRIA 1 instream flow rule amendment process.

900 **Problem 3.0. Invalid implications drawn and invalid use of a USGS analytical model**

902 **3.1. Introduction:**

903 In his comments on the preliminary draft rule dated May 8 2019, Skip Richards called out the
904 improper use of a USGS model in drawing implications regarding the impact of the estimated 2,150 new
905 domestic wells put to use in the next 20 years.

906 Richards:

907 “[**DraftSupportingDoc04**] in turn relies in part on references to work done by USGS, namely a
908 computer program described in a report by Reeves 2008: STRMDEPL08—An Extended Version of
909 STRMDEPL with Additional Analytical Solutions to Calculate Streamflow Depletion by Nearby Pumping
910 Wells By Howard W. Reeves Open-File Report 2008–1166.

912 A cursory examination of Reeves reveals the input data to the computer program included:

913 Well pumping rate: **250 gallons per minute**, or roughly **0.557 cfs**. [**emphasis added**]

914 Well distance from stream: 500 feet.

915 TRANSMISSIVITY: 0.116D-01 square feet per second

916 STORATIVITY: 0.100D+00

917 STREAMBED CONDUCTANCE: 0.231D-03 feet per second

918 Well pumping regime: **91 days** constant pumping at the above rate for the continuous
919 pumping case. [**emphasis added**]

920 Obviously, the Reeves input parameters are more representative of (and were likely designed to
921 model) a commercial irrigation pumping regime.

922 By contrast, a single domestic permit-exempt well pumping at its (former) statutory capacity of
923 5,000 gallons per day is pumping at **0.0077 cfs**, or **3.47 gallons per minute**, which is approximately **1.4**
924 **percent** of the rate used in Reeves.

926 Given the nature of the equations used in Reeves, based on Darcy’s Law, we should expect
927 proportional outcomes. Thus, since the peak streamflow depletion rate in Reeves, which is **0.2437 cfs** after
928 30 days of continuous pumping at the rate of **0.557 cfs**, then for a permit-exempt well pumping at its
929 statutory limit, the rate should be something like **0.0034 cfs**.

930 Few, if any, domestic permit-exempt wells pump continuously for 24 hours per day for 90 days. To
931 obtain a more accurate result, run the STRMDEPL08 program with a pumping regime of something more
932 like 8 hours per day every day. Using even that regime will err on the (far) side of caution. The results from
933 using the 8-hours/day pumping regime for a domestic permit-exempt well pumping at its (former) statutory
934 rate of 5,000 gallons per day are likely to be something like **0.0012 cfs**.”

935 Source: Richards May 8 Comments to Ecology on its draft rule amendment.

937 **3.2. The changes Ecology made to SupportingDoc11-093 fail to make its case for the reductions in** 938 **domestic water use proposed by the rule amendment.**

939 In apparent partial acknowledgement of the points Richards made in his May 8 comments, cited
940 above herein, Ecology added language to **SupportingDoc11-093** as follows:

941 “The STRMDEPL08 analysis depicted in Figure 4.2 is for an irrigation well that pumps a large quantity
942 of water (6.14 cfs) continuously over a three month irrigation season. **This analysis isn’t specific to the**
943 **particulars of domestic permit-exempt well use in WRIA 1, which would involve significantly smaller**
944 **volumes of water for each well.** It is informative because it shows how even large seasonal pumping stresses
945 on streamflow depletion are often attenuated out over the entire year and approach a steady-state, annualized
946 volume pumped over a twelve month period. This occurs even though the irrigation well was pumped at a much

947 higher rate over just the irrigation season. As the distance of the well from the stream increases, the depletion
948 impacts to the stream are attenuated.” (**SupportingDoc11-093**, page 31, [**emphasis added**]).

949 It is difficult to see, however, why the model’s results justify Ecology’s assessment of streamflow
950 impacts, if it shows “stresses on streamflow depletion are often attenuated out over the entire year” and as
951 “... the distance of the well from the stream increases, the depletion impacts to the stream are attenuated.”
952 These two statements appear to support the contention that the effects of domestic well pumping on streams
953 is not all that big a deal to begin with.

954
955 **3.2.1. Use of Local Parameters:** Ecology apparently followed Richards’ suggestion to rerun
956 STRMDEPL08 using local values for the model’s parameters. “The Reeves transmissivity, storativity, and
957 streambed conductance parameters should be checked to see how well they conform to values for those
958 parameters being used by Associated Earth Sciences, which has contracted to create a numerical ground
959 water model of a significant portion of WRIA 1.” Richards May 8 Comments.

960 Ecology, **SupportingDoc11-093**, page 31: “Aquifer parameters that are representative of an
961 unconfined aquifer in Whatcom County were input into the USGS analytical tool. ... Values for Transmissivity
962 (5,000 ft²/day), Storativity (0.11), and Streambed Conductance (1 ft/day) were derived from work performed by
963 Associated Earth Sciences Inc. for their ongoing 2019 groundwater modeling efforts in WRIA 1.”

964 3.2.1.1. What about the model’s many other parameters? Reeves’ STRMDEPL08 analytical model
965 lists more parameters that might vary from one hydrogeological regime to another, such as:

- 966 Streambank leakance, in feet;
- 967 Specific yield;
- 968 Streambottom to aquifer top in feet;
- 969 Thickness of semi-confining layer in feet;
- 970 Stream width in feet;

971
972 Further, Ecology does not disclose which of the several types of analytical solutions STRMDEPL08
973 provides that it chose to run. That oversight matters because the selection of input parameters is dependent upon
974 the solution applied. STRMDEPL08 provides for several solution scenarios:

- 975 0 = fully penetrating, no streambank resistance (Jenkins, 1968)
- 976 1 = fully penetrating with streambank leakance (Hantush, 1965)
- 977 2 = partially penetrating with resistance (Hunt, 1999)
- 978 3 = stream in an aquitard over a leaky aquifer (Hunt, 2003)

979 It may be that the solution Ecology chose to run obviated the necessity of selection certain of the
980 input parameters, but since **SupportingDoc11-093** does not name the solution chosen, there is no way to
981 know for sure.

982
983 Further still, Ecology also acknowledged comments from Associated Earth Sciences that other
984 factors not considered in the Reeves model caused it to systematically overestimate stream flow impacts:
985 “The USGS’s analytical tool is conservative in that it will likely overestimate stream depletion because it
986 doesn’t consider induced recharge that may occur within the watershed (when groundwater pumping lowers a
987 high water table below the land surface allowing additional infiltration) and it only reflects water table
988 conditions.” **SupportingDoc11-093** , page 31.

989 Nevertheless, Ecology continues, “Even so, it [Ecology’s analysis] is helpful in showing the timing
990 and magnitude of depletion impacts over the course of the year for the combined monthly average pumping
991 stresses needed to supply all of the anticipated new domestic permit-exempt wells in the WRIA. Even water
992 table wells located within a couple hundred feet of their connected streams will deplete those streams at less
993 than the annualized, steady-state rate (see Figure 4.3).” **SupportingDoc11-093** , page 31. Here again Ecology
994 appears to argue against its own conclusions, or, at the least, sidestep the implications that failing to take
995 into account that these other factors like induced recharge might in fact affect the timing and magnitude
996 shown by the Reeves model.

997 Yet, if the model overestimates, then why did Ecology not adjust the 1.5X “safety factor”
998 downward accordingly? Maybe because the model’s results are not reliable enough to provide a basis for
999 doing so? Then why make reference to it at all?
1000

1001 **3.2.2. The STRMDEPL08 program only allows for continuous (24-hour/day for the entire study**
1002 **period) pumping, which does not accurately reflect a domestic well pumping regime.**

1003 Inputting local parameters to the model is insufficient to make the model applicable to domestic
1004 well use. As noted above, in his comments on the preliminary draft rule Richards noted that “To obtain a
1005 more accurate result, run the STRMDEPL08 program with a pumping regime of something more like 8
1006 hours per day every day. Using even that regime will err on the (far) side of caution.” Yet,
1007 **SupportingDoc11-093** makes no mention of having done so.

1008 Use of the model without adjusting the timing of its pumping regime could significantly
1009 overestimate streamflow depletion of wells, since the intermittent pumping pattern characteristic of
1010 domestic wells gives time for the ground water to begin to flow back toward the stream.
1011

1012 **3.2.3. Well distance from stream: a critical parameter noted but not fully taken into account:**

1013 At page 31, **SupportingDoc11-093** states: “RH2 developed a shapefile that locates the parcels that
1014 received building permits within the watershed over the period 2000 – 2014. Figure 4.4 is a map that shows
1015 their locations. Over this period, new homes have been scattered throughout the watershed. The distances
1016 from these parcels to nearby streams appears to be highly variable in much of the watershed.”

1017 And on page 32 **SupportingDoc11-093** continues: “We anticipate that new domestic permit-exempt water
1018 wells will continue to be located throughout the nine aggregated subbasins of the watershed as
1019 contemplated by the WRIA 1 planning groups.”

1020 The problem with that assumption is that while the RH2 data was the best the “planning groups”
1021 had available to work with, the average distance of future wells will likely be larger than historical, due to
1022 increased buffer requirements for building locations due to critical areas ordinance (Whatcom County Code
1023 16.16).

1024 Further, Ecology admits: “Additionally, not all of these wells (represented by parcels in the
1025 shapefile) will be completed in water table aquifers. Confined well impacts on streamflow depletion will be
1026 more diffuse than water table wells.” **SupportingDoc11-093**, page 32.

1027 If so, it appears Ecology made no attempt to segregate those wells not located in water table
1028 aquifers, which might overstate the gross consumptive use figures.
1029

1030 **3.2.4. The results of the overall streamflow depletion impacts as displayed in Figures 4.2 and 4.3 is**
1031 **based on a false premise and is thus fatally flawed.**

1032 Beginning page 32 of **SupportingDoc11-093**, Ecology displays Figure 4.2, titled “Stream depletion
1033 from a well over a twenty-year timeline,” and Figure 4.3, titled “Analytical results obtained from the USGS
1034 STRMDEPL08 program utilizing parameters that are typical for the Sumas Aquifer in Whatcom County.”
1035 Ecology claims these figures estimate the steady state depletion rate after 20 years of new domestic well
1036 pumping. These displays, and any analysis based on them, is fatally flawed because it assumes that all
1037 2,150 domestic wells start pumping at Year One, that is, in 2018! In fact, according to the RH2
1038 Engineering’s analysis, approved by the WRIA 1 “planning groups” and relied upon by Ecology to perform
1039 its analyses, roughly one-twentieth of the wells will begin pumping at any given year and it will not be until
1040 year 20 that 2,150 wells will be pumping. Thus, even if Ecology’s estimate of the steady-state depletion
1041 rate as depicted in Figures 4.2 and 4.3 are correct, the estimated steady-state depletion rate will not be
1042 achieved until the year **2058**.
1043

1044 Aside from that flaw, the figure likely overstates streamflow depletion because of the assumptions made:
1045 “It assumes all wells will be completed in the water table aquifer, parameters are the same throughout the entire
1046 watershed, and uses the highest crop water duty station in the watershed for all wells.” [From the caption for Figure
1047 4.3, page 37, **SupportingDoc11-093**] As noted in Section 3.2.3 herein, Ecology admits that not all the wells

1048 will be located in water table aquifers, nor did Ecology take into account the likely larger distances from
1049 streams by future wells.

1050
1051 Finally, if Ecology used a constant pumping rate every day, as the Reeves STRMDEPL08 program
1052 provides, the results cannot be accurate, since domestic wells pump only a few hours per day, even in the
1053 months of peak use, as noted in **Section 3.2.2** herein. The use of a constant pumping rate appears to be why
1054 the steady state rates depicted in Figures 4.2 and 4.3 approach a maximum over time. Depending upon the
1055 hydrogeological parameters and distance from well to stream, intermittent pumping might result in little or
1056 no net streamflow depletion, since when the pump is shut off, gravity takes over and the water flow will
1057 begin returning from the pump head to the stream.

1058 1059 **3.3. Findings and Conclusions re the use of the USGS STRMDEPL08 program:**

1060 If its discussion of its methodology in arriving at its estimate of streamflow depletion by wells in
1061 Chapter 4 of **SupportingDoc11-093** accurately reflects what Ecology actually did in arriving at its
1062 estimates, then the methodology is flawed in a manner that systematically overestimates streamflow
1063 depletion.

1064 In **SupportingDoc11-093**, Ecology sets forth many caveats that undermine its case. In doing so, the
1065 effort fails to take into account the full set of facts on the ground and as such provides insufficient basis to
1066 justify the reductions in domestic use proposed in the rule amendment.

1067 Finally, the use of the USGS STRMDEPL08 program appears to be an attempt to impress rather
1068 than to explain, because **SupportingDoc11-093** fails to describe how it used the output of the program to
1069 inform its selection of the water use rates it intends to embody in the rule.

1070
1071 **3.4. Sources consulted:** See [References](#) section.

1072 1073 **4.0. Offsets and NEB**

1074 In Chapter 6 – Projects and Actions, **SupportingDoc11-093** states as follows:

1075 “The project list (Table 6.1) intentionally includes projects anticipated to exceed the projected required
1076 offsets, including a safety factor. Ecology identified geographically distributed projects in an attempt to meet
1077 each aggregated subbasin’s projected offset requirements. In-time and in-subbasin offsets would be of highest
1078 priority; however, this was not always feasible and, per RCW 90.94.020(4)(b), in-time and in-subbasin offsets
1079 are not required, as long as offsets are met in total across the WRIA. The projects in this RSD exceed the offsets
1080 required across WRIA 1, and therefore meet the overall statutory requirements for offsets.” (page 43)

1081 And:

1082 “It is expected that the projected consumptive use calculations (including the safety factor) in each of
1083 the three aggregated subbasins where complete offsets are not achieved, are *conservative*, because they likely
1084 *overestimate* the required offset amounts. This provides for additional levels of certainty that offsets are met and
1085 NEB is achieved in the WRIA, in case certain projects are not implemented and/or don’t achieve the anticipated
1086 results.”

1087 Further:

1088 “The combination of the high likelihood of project completion and the adaptive management
1089 mechanism provide Ecology with a reasonable assurance that the projects will meet the offset requirement and
1090 achieve NEB during the planning horizon ... ”

1091 Finally:

1092 “Applying these pumping stresses [as set forth earlier in **SupportingDoc11-093**] to all 2,150 projected
1093 new domestic permit-exempt wells creates a WRIA-wide peak monthly demand of up to 850 GPM. As shown
1094 in Table 9.3, the water offset projects listed in Chapter 6 generate a real-time offset volume equivalent to 2,291
1095 GPM across the watershed. Even though we don’t believe transient pumping stresses associated with seasonal
1096 irrigation creates transient streamflow depletion impacts that need to be directly addressed, the project offset
1097 volumes exceed the seasonal peak monthly pumping rate. (**SupportingDoc11-093**, page 67)

1098 Therefore, by its own account, Ecology has provided a basis to claim that leaving the statutory rate
 1099 of 3,000 gpd for new domestic wells plus 1/2 acre outdoor irrigation, in combination with the offset
 1100 projects, will result in NEB sufficient to meet statutory requirements.
 1101

1102 **4.1. Projects on Ecology’s list are sufficient to provide full offset and NEB:**

1103 As demonstrated in the section of this document titled [Matters of Law](#), the projects on Ecology’s list
 1104 will provide sufficient offset and NEB to enable keeping the indoor use at the statutory limit of 3,000 gpd,
 1105 and the outdoor irrigation area at 1/2 acre.

1106 Recap: Since both of these use rate numbers are six times the limits Ecology proposes, to calculate
 1107 the maximum use scenario using those figures, simply multiply Ecology’s figure for the maximum use
 1108 scenario of 343 acre-feet per year by six, giving 2,058 acre-feet per year maximum use if the 2,150 new
 1109 wells were permitted to pump 3,000 gpd and irrigate 1/2 acre.

1110 According to **SupportingDoc11-093**, “In total, Ecology’s project list provides an estimated 3,767
 1111 acre-feet per year of offset water.”

1112 Applying the 1.5 safety factor to that figure, the result is 3,087 acre-feet per year, which leaves an
 1113 excess of 680 acre-feet per year for NEB. Note that by combining the safety factor with the maximum use
 1114 rate, the likelihood is very high that there will be excess offset water that could contribute to NEB provided
 1115 within the 3,087 acre-feet per year calculation.

1116 These calculations demonstrate that Ecology, using its same approach, could have chosen to leave
 1117 the existing water use limits and still have sufficient offset water to offset both the maximum use scenario,
 1118 plus the safety factor, plus excess to provide NEB.
 1119

1120 **4.2. Recasting Ecology’s Table 4.2 using the statutory water use rate limits:**

1121 Using the same methodology the table below simply scales up the use rates by a factor of six and
 1122 distributes them across the subbasins as Ecology did yields the following table:
 1123

Recasting Ecology's Table 4.2 using the statutory use rates of 3,000 gdp indoor and 1/2 acre outdoor:

	Coastal	Coastal	Coastal	Lake	Lower	Middle	North	South		
	North	South	West	Whatcom	Nooksack	Fork	Fork	Fork	Sumas	Total
wells:	594	241	290	145	561	9	126	22	162	2,150
use rate/well aff/y:	1.43581	1.43581	1.43581	1.435814	1.435814	1.43581	1.43581	1.43581	1.43581	1.43581
total consumptive use aff/y	852.87	346.03	416.39	208.19	805.49	12.92	180.91	31.59	232.60	3,087.00
total consumptive use cfs	1.18	0.48	0.58	0.29	1.11	0.02	0.25	0.04	0.32	4.26

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1127 **5.0 Putting all of the water use calculations in perspective:**

1128 Ecology’s stops its analysis at the distribution of consumptive water use of 2,150 domestic wells
 1129 across the nine subbasins of WRIA 1, as depicted in Tables 4.2 and 4.3 of **SupportingDoc11-093**. It is
 1130 instructive to break the distribution down further, into the drainages of each subbasin. There is only one
 1131 subbasin that has been studied at the drainage level in sufficient detail to enable a finer-grained analysis,
 1132 the Lower Nooksack.

1133 The report known as the Lower Nooksack Water Budget 2012, Chapter 12, Existing Conditions
 1134 Model Output, displays the gross use by type of water user by drainage. A few of them are displayed
 1135 below.

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Drainage	*Page	User Withdrawals *	Month	All values in CFS			Sept	% July
			June	July	Aug			
Bertrand	378	Irrigation	37.61	51.80	47.68	25.07	98.25	
		Dairy	0.31	0.31	0.31	0.31	0.59	
		Comm/Indus	0.02	0.02	0.02	0.02	0.04	
		GWS	0.00	0.00	0.00	0.00	0.00	
		NGWS (+private wells?)	0.45	0.60	0.51	0.42	1.14	
		Total GW	31.81	43.66	40.18	21.43	82.81	
		Total SW	6.58	9.06	8.34	4.39	17.19	
		Total	38.39	52.72	48.52	25.82	100.00	
		Streamflow @ outlet	36.30	24.80	19.20	27.80	Current	
			31.00	26.00	21.00	20.30	Historic	
#Minimum stream flow	29.00	19.00	13.00	13.00				
	(average of both 2-wk values)							

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Drainage	*Page	User Withdrawals *	Month	All values in CFS			Sept	% July
			June	July	Aug			
Deer	379	Irrigation	4.60	6.13	5.51	3.20	96.23	
		Dairy	0.00	0.00	0.00	0.00	0.00	
		Comm/Indus	0.02	0.02	0.02	0.02	0.31	
		GWS	0.00	0.00	0.00	0.00	0.00	
		NGWS (+private wells?)	0.16	0.22	0.18	0.15	3.45	
		Total GW	4.70	6.25	5.61	3.31	98.12	
		Total SW	0.09	0.12	0.11	0.06	1.88	
		Total	4.79	6.37	5.72	3.37	100.00	
		Streamflow @ outlet	4.60	4.30	4.10	4.90	Current	
			4.90	4.80	4.50	4.60	Historic	
#Minimum stream flow	2.50	1.50	1.00	1.00				
	(average of both 2-wk values)							

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1141

Drainage	*Page	User Withdrawals *	Month	All values in CFS			Sept	% July
			June	July	Aug			
Ten Mile	392	Irrigation	14.52	19.27	17.24	9.72	94.97	
		Dairy	0.09	0.09	0.09	0.09	0.44	
		Comm/Indus	0.06	0.06	0.06	0.06	0.30	
		GWS	0.00	0.00	0.00	0.00	0.00	
		NGWS (+private wells?)	0.66	0.87	0.74	0.61	4.29	
		Total GW	14.60	19.33	17.27	10.00	95.27	
		Total SW	0.73	0.96	0.86	0.49	4.73	
		Total	15.33	20.29	18.13	10.49	100.00	
		Streamflow @ outlet	10.13	10.56	11.15	11.56	Current	
			20.60	19.00	17.50	18.70	Historic	
#Minimum stream flow	14.50	8.50	5.00	5.50				
	(average of both 2-wk values)							

Sources of data:

*From Bandaragoda et al Water Budget Summary Tables by Drainage Chapter 12 Existing Conditions
From WAC 173-501

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NOTE: the figures from the Lower Nooksack Water Budget are presumably total use, not just consumptive use.

1145 To put these figures into perspective, there are 16 drainages in the Lower Nooksack. Distributing the 1.11
1146 cfs worth of water consumptively used by the 561 new wells installed over the next 20 years evenly across
1147 all 16 drainages results in an average use per drainage of 0.069375 cfs, or 44,838 gpd, or 79 gpd per well.
1148

1149 Conclusions one can draw from these results include:

1150 5.1. Existing uses in each subbasin dwarf the projected use levels by the 2,150 new domestic wells
1151 over the next 20 years;

1152 5.2. Ecology claims that unmeasurable impacts are not the same as incalculable impacts. Ecology's
1153 impact calculations may be valid, but they detract from the elephant in the room: the impact to streamflow
1154 of the next 20 years-worth of domestic wells is insignificant.

1155 5.3. The future adoption of even minor levels of water use reduction percentages in these other
1156 sectors, over and above the projects on Ecology's list, due to measures such as improvements in water use
1157 efficiency of both commercial irrigation as well as domestic use, ground water augmentation or transferring
1158 water rights from surface to ground, can easily offset all or most all of the the increased use of water by
1159 new domestic wells.

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1191		
1192	For Matters of Policy :	
1193		
1194	See the section itself for any and all references.	
1195		
1196		
1197	For Matters of Law :	
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1199	See the section itself for any and all references.	
1200		
1201		
1202	For Matters of Science :	
1203		
1204	Preliminary comments on initial draft rule, by:	
1205	Associated Earth Sciences by way of Dan Eisses, Birch Bay Water and Sewer District;	
1206	Skip Richards	
1207		
1208	December 3, 2014 Department of Ecology Presentation on Instream Flows to WRIA 1 Planning Unit	
1209	https://wria1project.whatcomcounty.org/resources/other-resources/december-3-2014-instream-flow-	
1210	presentation	
1211	which includes:	
1212	Ann Wessel: How was the current Nooksack Instream Flow Rule set and how does it work?	
1213	https://drive.google.com/file/d/1tTryPnQIPBLuAWvGFwN1NAoIk66-vsdV/view	
1214		
1215	Jim Pacheco Instream Flow Science	
1216	https://drive.google.com/file/d/1vkNfmVB-vpIrnIzBDZrXNUkLc9Chyi2T/view	
1217		
1218	video of both presentations: https://www.youtube.com/watch?v=lUVAm6wsXGs	
1219		
1220	Rule Supporting Document Amendment to Chapter 173-501 WAC Instream Resources Protection Program	
1221	-Nooksack Water Resource Inventory Area (WRIA)1Preliminary Draft for Public Comment	
1222	https://fortress.wa.gov/ecy/wrdocs/WaterRights/wrwebpdf/WRIA1-	
1223	PreliminaryDraftRuleSupportingDocument-04082019.pdf	
1224		
1225	DOE: 100 Years of Water Law: https://www.youtube.com/watch?v=hTubPXaCk6I	
1226		
1227	STRMDEPL08—An Extended Version of STRMDEPL with Additional Analytical Solutions to Calculate	
1228	Streamflow Depletion by Nearby Pumping Wells By Howard W. Reeves Open-File Report 2008–1166	
1229	https://pubs.usgs.gov/of/2008/1166/pdf/ofr2008-1166_web.pdf	
1230		
1231	Dupuit–Forchheimer assumption	
1232	https://en.wikipedia.org/wiki/Dupuit%E2%80%93Forchheimer_assumption	
1233		
1234	Dupuit Equation for Steady-State Flow to a Well in an Unconfined Aquifer	
1235	http://www.edumine.com/xtoolkit/xmlicon/Dupuit_radial_eqn_and_assump_1piez.html	
1236		
1237	Darcy’s Law:	
1238	http://www.gwpc.org/water-energy/hydraulic-fracturing/groundwater-protection/fluid-flow-	
1239	subsurface-darcys-law	

1240 https://www.ldeo.columbia.edu/~martins/climate_water/lectures/darcy.html
1241 [https://www.brightengineering.com/hydraulics-civil-engineering/58490-darcys-law-for-](https://www.brightengineering.com/hydraulics-civil-engineering/58490-darcys-law-for-modeling-groundwater-flow/)
1242 [modeling-groundwater-flow/](https://www.brightengineering.com/hydraulics-civil-engineering/58490-darcys-law-for-modeling-groundwater-flow/)
1243
1244 Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on
1245 Streamflow USGS Circular 1376
1246 https://pubs.usgs.gov/circ/1376/pdf/circ1376_barlow_report_508.pdf
1247
1248 Streamflow Depletion by Wells—Understanding and Managing the Effects of Groundwater Pumping on
1249 Streamflow Leonard Konikow, Paul Barlow, & Stan Leake U.S. Geological Survey
1250 Groundwater Protection Council Annual Forum, St. Louis, September 24, 2013
1251 http://www.gwpc.org/sites/default/files/event-sessions/Konikow_Leonard2FINAL.pdf
1252
1253 Transient effects of groundwater pumping and surface-water-irrigation returns on streamflow
1254 Eloise Kendy John D. Bredenhoef 2006
1255 <http://onlinelibrary.wiley.com/doi/10.1029/2005WR004792/full>
1256
1257 THE PRINCIPLE OF SUPERPOSITION AND ITS APPLICATION IN GROUND-WATER
1258 HYDRAULICS Thomas E. Reilly, O. Lehn Franke, and Gordon D. Benne USGS 1987
1259 https://pubs.usgs.gov/twri/twri3-b6/pdf/twri_3-B6_a.pdf
1260
1261 Lower Nooksack Water Budget 2012, Chapter 12, Existing Conditions Model Output
1262 https://drive.google.com/file/d/1e0ToTOGE0rCWrlOoddMtnIZrPd6X_wHz/view
1263
1264 [\[Table of Contents\]](#)
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