**WRIA 15 TECHNICAL WORKGROUP MEETING**

November 18, 2019

Attendees:

Paul Pickett – Squaxin Island Tribe

Joel Purdy – Kitsap PUD

Dave Nash – Kitsap County

Austin Jennings– Pierce County

Alison O’Sullivan– Suquamish Tribe

Stacy Vynne – Ecology

Bob Montgomery – Anchor QEA

Jimmy Kralj – ESA

Zach Holt – Port Orchard

Eric Ferguson – King County (phone)

**Recap/Status of Committee Discussion on Growth Projections**

* Low range 6,388 new wells/connections, and very high range of 7,938 new wells/connections.
* New data about ~146 new wells per year historically have gone in for Kitsap.
  + Proposal from KPUD to add this to the projection.
* Mason County did not provide ranges or scenarios.
  + The high Mason number is a refinement that includes permit exempt wells within a service area.
  + Suggestion to use 1,301 across each scenario to capture the fact that the 1,301 value is a refinement based on the same population estimate (includes the addition of 12 wells that could go within water service areas).
* Kitsap County will send out an updated list with refined methodology (water line buffers, Hood Canal split, etc.).
  + These estimate numbers will not be ready to be agreed upon at the December meeting.
  + Dave will be ready to present the updated numbers at the December full committee meeting.
  + Three out of the four counties have settled on their number, and only the Kitsap number needs to be refined. Recommendation to move forward with the King, Pierce and Mason numbers.
* Kitsap Changes:
  + Vacant parcels within 200 feet of a water line were used to allocate growth, the remainder of the growth was put on 1 acre parcels outside of the waterline buffer.
  + Kitsap County has an urban population number, and everything that doesn’t fit within the urban areas goes into rural areas.
  + Wells within urban areas are rare in Kitsap County.
    - Bainbridge is the exception because the entire island is an incorporated city, not a UGA.
  + There is no assumption of waterline expansion incorporated into these numbers from Kitsap County.
  + Kitsap PUD: Using the .25 and .75 picks up the very small legacy lots that are installing wells.
  + Kitsap County and PUD said that there are enough exceptions to the 1-acre assumption, that the .25 and .75 acre assumptions were justified.
  + Excess growth outside of the water service area: There are many more parcels than the expected growth. So the number of wells doesn’t change no matter what acreage size you assume.
  + How did the amount of wells go down by half with this new methodology?
    - The numbers changed because a lot more of the smaller parcels were incorporated in the water line areas in this analysis.
    - The County is working on writing up the refinement to their method and will share with the workgroup and committee later this week.
  + ***Recommendations from the workgroup to advance the projections for King, Pierce and Mason counties for committee approval. Joel will provide a proposal for an alternate Kitsap number that is based on the historical well trends. Kitsap County will present updated information on methods and results in December.***

**Consumptive Use Calculations**

* Outdoor irrigation analysis
  + Currently QA/QCing this data right now so there will be more to share on this in a few weeks, definitely by the next committee meeting.
  + Important to note: 0.05 average acre was presented before, but it is actually 0.08 acres.
  + Any updates on the QA/QC
    - On average, the GeoEngineers numbers (for WRIAs 7, 8, 9) are higher than the average outdoor irrigation calculations for the work HDR did in WRIAs 10, 12, 13, 14 and 15..
    - Ultimately it is up to our committee on what number to use, even if discrepancies are found.
      * The work that John and Joel did is very consistent with what HDR produced. How can we tell which firm produced the more accurate number and what is the bias?
        + Likely more error, than bias.
        + The consultants will provide a recommendation on changes to consider for the initial number..
    - Will the QA/QC tell us anything new?
      * Suggestion to move forward with the HDR number along with the substitution to 0.05 acres from the 0 acre parcels.
  + Suggestion to plug in 0.03 acres for the non-detects (given that at 0.03 acres the sample size required to estimate mean at a specified allowable error margin is 75 parcels, which is close to the 80 samples parcels that were analyzed).
    - This consistent with the low amounts of irrigation and the low agriculture parcels in Kitsap County and the WRIA.
    - Proposal to use this number and move forward in the process.
    - Using this .03 substitute comes to .1-acre average irrigated size
  + If there is a bias found in the QA/QC, what do we want to do with it?
    - If there is a noticeable percentage difference between the two firms, you could apply that percentage factor.
  + Before making a recommendation to the full committee, we will want to see the final results of the QA/QC, but we can also recommend the 0.03 substitution.
  + .03 acres is a 35-foot by 35-foot area
    - Isn’t this able to be seen by aerial imagery?
  + ***The workgroup recommends using an average irrigated area size of .1-acre.***
    - As applied to the consumptive use calculator, this results in 150 gallons per day of total consumptive use per household.
    - This is very high, double the observed amount.
* Other assumptions used in consumptive use estimates, proposal or considerations from the group (irrigation efficiency, outdoor consumptive use percentages)
  + Paul Pickett has done a sensitivity analysis to see how changing each of these values impacts the final amount.
  + Instead of tweaking all these numbers, it would be possible to consider an overall safety factor.
  + Changing any assumption requires strong local justification.
  + Preference to use the USGS table estimate of 75 gallons per day pre new well.
    - Number is based on real data.
    - This does not take into account the irrigated footprint.
      * 14% of users are always in tier 4, they use a lot of water. And there are other users that are well below the minimum
      * The USGS numbers reflect a large sample of users of water in Kitsap county and includes Group B systems that don’t have tiered rates.
      * The outdoor irrigation analysis uses layers of assumptions, each of which makes that analysis a very conservative estimate, while the USGS data is based in actual use.
      * The USGS study is posted on Box and the committee webpage.
  + HDR is comparing actual water use for outdoor irrigation from metered data to the same methods they using for their aerial methods. This should be done soon which would help provide more information to the committee.
* Safety Factor Discussion
  + Climate Change Considerations – presented by Paul.
    - Looking at changes in consumptive use under climate change, specifically through evapotranspiration.
    - Evapotranspiration is measured at an AgWeatherNet station in Poulsbo.
    - Paul compared data from 2015 (warm year) to 2018 (normal year) and did a regression analysis.
    - You could predict evapotranspiration from temperature and humidity.
    - Then using the NW climate tool box, it will give you the expected future temperature increase by 2040.
      * Using this value (2.3-degree increase) and the equation from the regression analysis results in 1.5 inches (7.1%) increase in water demand.
    - Potential for incorporating this into a safety factor.
  + 17-inch irrigation requirement is lower than the 21-inch requirement from the AgWeather analysis
    - Ecology recommends using the WAIG method (which is 17 inches).
    - These values are based on alfalfa and irrigated pasture to maximize plant growth for commercial use, and not necessarily domestic lawns.
    - Ecology recommends the WAIG because the numbers are already conservative for the above reason.
  + Because many of the values in these assumptions are averages, there is already enough of a safety factor baked into these results.
    - To comply with the law, we want to provide enough certainty that the projects will offset the right number. For that reason, we may want to consider a safety factor.
    - The adaptive management component of the plan is extremely important for this reason.
    - We will need to present the project list in a way that reflects assumptions and averages.
      * The project list can be shown as “what we need to do” and “what we want to do”
  + At this point, its most useful to move forward with working numbers and discuss safety factors at the end of the process to generate a draft example of a plan.
  + Providing justification to the safety factor helps support the decision to include one.
    - Suggestion to come up with the most reasonable number possible, and then apply safety factor.

**Action Items and Next Steps**

* Next steps
  + Optional hydrogeology hydrology meeting on December 11
  + Next workgroup meeting January 14 (morning) to further discuss consumptive use assumptions and safety factors.