

Questions on "Provost & Pritchard Engineering Report, Yosemite West Water Service Area, June 8, 2020".

Submitted by John Mock, member, Yosemite West District Advisory Committee, for Special Meeting of the Committee on July 9, 2020.

**SECTION 2.3**, "Background of the NESC Campus development", page 2-4, paragraph 1, references "the ultimate campus build-out" on line 3 and "build-out capacity" on line 5. "Ultimate campus build-out" mentions the NPS fire station, but "build-out capacity" does not.

The "Technical Memorandum" dated October 8, 2019, included in the Report as Appendix D, mentions the NPS fire station and shows, in Figure 1, plumbing fixture unit calculations for the NPS fire station.

**Question:** Why didn't the Report maintain consistent use of terminology throughout? If there are differences, they need to be clearly explained.

**SECTION 2.4.1** "DDW Letters to Mariposa County", key point 5 on page 2-5 of the Report refers to a Mariposa County agreement with a neighboring property owner for an emergency water connection to the YWWSA water storage tanks. I have asked Mariposa County Public Works for a copy of the Agreement, but it could not be located and may never have existed.

The 2012 Domestic Water Supply Permit for the Yosemite West Water System, condition 11, requires Mariposa County by January 15, 2013 to submit a plan and time schedule for providing at least one other source of supply. This same condition is reiterated as Special Provision 12 in the 2019 DWW Sanitary Survey (included as Appendix B of the Report).

In a letter dated July 29, 2013 (see attached pdf file "Mariposa PWs to State Water Board Jul 29, 2013 re second water source"), Mariposa County lists three potential options for a Yosemite West second water source and states that no work on these options can begin until a funding source is identified. Neither a specific plan nor a timetable was actually submitted. The 2019 DWW Sanitary Survey, Section 2.3, "Adequacy of Supply", accurately states that Mariposa County listed three options, that no agreement was reached with an established source, and the County is now interested in a new well.

**Question:** Why didn't the Report present full and accurate information on this important history? The statement that "The County previously mitigated this concern by establishing an agreement with a neighboring property owner" is untrue, as noted in the 2019 DWW Sanitary Survey and evidenced by the July 29, 2013 Mariposa County letter to DWW. The condition imposed in the 2012 Domestic Water Supply Permit was not been mitigated; only "potential options" were identified and no action was taken. (This was done under a previous Public Works Director and should not be construed as a reflection on the current Director).

**SECTION 3.1.1.** "Yosemite West Water System Historical Water Demands", shows average demand on annual, monthly and daily basis. California Waterworks Standards, § 64554 "New

and Existing Source Capacity" (a), requires use of maximum day demand rather than average day demand.

**Question:** Why didn't the Report consistently use maximum day demand, as required in § 64554 (a) and as defined in § 64554 (b), rather than average day demand?

**SECTION 3.1.2.** "National Environmental Science Center Campus", page 3-4, paragraph 2, referencing the "Technical Memorandum included in Appendix D", identifies an estimated water demand of 7,320 gpd, which is rounded up in paragraph 3 of this section of the Report to 7,500 gpd.

The "Technical Memorandum included in Appendix D, shows, in Figure 1, "calculated maximum day demand" of 5299 gpd. This is not "maximum day demand" as defined in § 64554 (b), which requires multiplying by a peaking factor of 1.5. Instead, it is a total of plumbing fixture uses that represents average day demand and not maximum day demand as defined in § 64554 (b).

**Question:** Why is maximum day demand not used consistently throughout the Report?

**SECTION 3.2.1.1** "Water Supply". Table 3-2 "Yosemite West Water System" on page 3-5 of the Report has a typo for the column 2 header. It reads "Avenue Daily Demand".

**Question:** Why the typo mentioned above? Why is "average daily well pump operation (hours)" not calculated using maximum day demand for August 2019, as per § 64554 (a) and (b)?

**Question:** Section 3.2.1.1., page 3-4, reports a 1984 "sustainable well capacity of 87 gpm" for YW Well no. 9. This is 100% operation. According to personal communication from System Operator Darryl Neilson, a system is best operated not at 100% capacity, but rather at 80% capacity to ensure sustainable operation over time. Why is practical operational advice not presented in the Report to present a practical, sustainable operational perspective?

**SECTION 3.2.1.2.** "Additional Water Demand for NESC" underestimates maximum day demand for NESC, as noted above in comment to Section 3.1.2, and overestimates the operation of YW Well #9, as stated in comment to Section 3.2.1.1, and uses average daily demand, rather than maximum day demand, as stated in comment to Section 3.1.1.

**Question:** Why is consistent terminology and data in accordance with California Waterworks Standards § 64554 not used throughout? Doing so would increase daily pumping time for YW full buildout plus NESC to more than 17 hours per day, i.e., more than 70% operation.

**SECTION 3.2.2.1.** "Additional Water Storage Requirements for NESC Average Daily Demand", on page 3-8, uses average daily demand, rather than maximum day demand. This is also the case for Figures 3-4, 3-5, and 3-6.

**Question:** Why is consistent terminology and data, in accordance with California Waterworks Standards § 64554, i.e., maximum day demand, not used throughout the Report? Also, it is important to distinguish between water storage and water supply. Water stored in tanks, also termed "distribution reservoirs", is not the same as water from a source, termed "water supply". As stated in the 2019 DWW Sanitary Survey, section 2.1, "the system's domestic water supply is groundwater from one active groundwater well." Why are these basic essential points not clearly stated and why do they appear to be hidden behind usage of average day demand, which is not consistent with CA Waterworks Standards?

**SECTION 3.2.2.2.** "Potential interconnection of water storage tanks" on page 3-10, recognizes "numerous jurisdictional constraints between the federal government and a local county owned water system".

**Question:** These jurisdictional and legal constraints (for example, NEPA and CEQA), require further elaboration by qualified impartial experts. Why does the Report not state clearly that this information is required before moving ahead with the proposed project?

**SECTION 4.1.** "Findings". Finding #3.a references "average daily water demand" for the current YWWSA, the anticipated NESC campus and future build-out of Yosemite West.

**Question:** Why is the Report inconsistent with California Waterworks Standards § 64554, which requires use of maximum day demand for current, anticipated and future water demands? YWWSA is not in compliance with its current Permit, YWWSA is not able to meet future demand, based on MDD as required by § 64554, NESC increases demand on the sole YW Well #9, and Mariposa County has received applications for water service from additional properties surrounding the current YWWSA in addition to the NESC application. Why does Provost & Pritchard not address, or at a minimum, advise Mariposa County that the additional demands would likely increase YWWSA usage by more than the 20% threshold and exceed Source Capacity, as defined in §64551.40 and require an amended water permit as required by §64556 (a)(5)? Why does the Report not take cognizance of the multiple applications for YWWSA water supply that are on file with Mariposa County DPWs and advise Mariposa County to conduct a Source Capacity Planning Study, as required by §64558 (a)(1)?

**SECTION 5** "Recommendations". Recommendation 1.a notes that County Ordinances do not include a definition of an Equivalent Dwelling Unit. However, County Code chapter 13.28, "Yosemite West Maintenance District Flow Control", Regulation 13.28.010 1) states: "If at any time after reconstruction of the district sewer system the sewer capacity will not permit sewer hookups sufficient to allow full build-out of all lots to a minimum of one three-bedroom, two bath single family residence per lot, the district shall limit water usage of each lot to a level to allow for full build-out. The limitation of water usage shall be an adjustment to the volumetric flow allocation per equivalent dwelling unit (EDU) as calculated in the engineer's report for assessment district no. 01-1 (Yosemite West Wastewater Facilities Project) County of Mariposa, State of California. The limitation shall be determined by the public works director based on a qualified engineer's report." Paragraph 2. of said Regulations states, "The district shall have the

authority to adjust water usage limitations from time to time as sewer capacity and/or water availability dictates. Water allocations shall not be transferable between lots."

**Question:** The above-mentioned Engineer's Report for assessment district 01-1 determines that there are 385.56 EDU of Total Benefit in the YW assessment district with a WWTF capacity of 96,390 gpd (subtracting 3,610 gpd of Infiltration & Inflow from the design capacity of 100,000 gpd). The current permitted daily operational flow of the YW WWTF is 60,000 gpd. Subtracting the same I & I figure of 3,610 gpd from the permitted flow = 56,390 gpd. Divided by total EDUs (56,390 / 385.56) = 146.255 gpd per EDU in Yosemite West. Why not use EDU figures based on existing definitions and County Code in determining an EDU definition?

**APPENDIX D.** "Technical Memorandum, Domestic Water Demand Evaluation for Hennes Ridge - National Environmental Science Center" dated October 8, 2019, Figure 1, has computational errors. I have entered the values supplied in Figure 1 and found that the computations for several categories are incorrect. (See attached Excel file "NESC estimates gpd per P&P"). The net result of these computational errors is an **increase** of 12 gpd total to 5311 gpd, which is an increase of 1.67 gpcpd. This is daily demand, not "maximum day demand" as stated in Figure 1. To calculate MDD, the daily demand must be multiplied by 1.5, yielding an MDD of 7967 gpd, not 7500 as stated throughout the Report. The gpcpd MDD is actually 21.77, not 20.1 as stated throughout the Report.

This overall estimate depends on use of gray water (recycled water) from showers and sinks for the toilets and urinals in the Boys and Girls Bathhouses. Title 22, CCR Section 60307, "Use of recycled water for other purposes", requires that use of recycled water for flushing toilets and urinals be disinfected tertiary recycled water. Is tertiary treatment planned? If so, why is that important detail of code compliance and public health not mentioned?

The estimate for the "Dining Hall Coffee Maker" of 1 gallon per day seems low. One gallon equals 21, 6-ounce cups of coffee. The staff (20 persons) alone would likely consume more than this in one day. Some of the students may well drink coffee. The estimate should be multiplied to present a more realistic figure.

The estimate of drinking water bottle refilling (at the Bathroom station) for 224 students is 0.5 gpd per student. Appendix D, page 3 states "One of the primary assumptions is that the typical camp field education programs have the students off-campus every day." Students will need to bring water with them for daily off-campus (i.e., outdoor) activities. The estimate of 0.5 gpcpd seems low. For example, see <<https://www.eatright.org/fitness/sports-and-performance/hydrate-right/water-go-with-the-flow> recommends higher rates for children older than 8 years old>.

The Final EIS for the Yosemite Environmental Education Center (NPS January 2010), page 2-21, Utilities, states, "Irrigation would not be used except possibly in the short term to establish initial plantings." No mention of potential initial irrigation uses of water (recycled or potable) is given. Why not?

**FINALLY**, what if the NESC, should it come on-line with YW water supply, **exceeds** 7500 (or 8000) gpd? YW owners are well-aware that a system's usage can only be known after it operates at capacity. Would NESC agree to limiting the maximum usage to a specific amount? Would NESC agree to comply with Mariposa County Code 13.28, " Yosemite West Maintenance District Flow Control" (referenced above under Section 5)?

There are many questions that are both unanswered by the current Report and also raised by the current Report. There are also computational errors in the current Report that bear directly on the estimates it makes. In my opinion, both the questions and the errors must be addressed fully before the Report can be accepted.

Attachments:

1. "Mariposa PWs to State Water Board Jul 29, 2013 re second water source.pdf"
2. "NESC gpd estimates per P&P.xlsx"