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Technical Memorandum

Date: February 9, 2023

To: Gordon Stankowski, General Manager RNVWD

From: George Hicks, P.E.

Subject: Engineering Report on Capacity of RNVWD System

In response to LAFCO Resolution 2022-09, you have asked us to provide an Engineering Report to determine the capacity of the current system. This Technical Memorandum is provided in response to that request.

The methodology for determining the capacity of a public water system is outlined in California Code of Regulations, Title 22, Section 64554 (Title 22). In addition to using Title 22 as the basis for our capacity determination, we also used the 2021 Sanitary Survey from the State Water Resources Control Board, dated December 1, 2022 (Sanitary Survey).

Title 22 states that a public water system shall have the capacity to meet the maximum day Demand (MDD). The methodology for determining the capacity of a public water system, as it applies to the RNVWD system, is outlined in Title 22, Section 64554 as follows:

- For systems whose source of water is exclusively wells, the system shall be capable of meeting MDD with the highest-capacity source offline (64554(c)).
- For systems of less than 1,000 connections, capacity is defined as the system storage capacity, except for systems with an additional source of supply (64554(a)(2)). RNVWD has two wells as independent sources of supply, so the system capacity is the sum of the storage plus the production rate of the lower producing well.
- If daily demand numbers are not available, the MDD is calculated using the maximum monthly demand, determining the average daily demand for that month, and multiplying that by 1.5. (64554(b)(2)(A))[1].

[1] Complete daily water production data is not available. In annual system reports (EARs), a maximum day production figure is listed but many of these reported figures exceed the total capacity of the system and/or occur in a non-peak month and are a very large percentage of a total months production. In their Sanitary Survey, the SWRCB questions the validity of this data. We concur and have used maximum month demands to calculate MDD since complete daily records are not available.

Santa Rosa
1400 Neotomas Avenue
Santa Rosa, CA 95405
Tel: 707.571.8005

Auburn
11641 Blocker Drive, Ste. 170
Auburn, CA 95603
Tel: 530.888.9929

Pleasant Hill
3478 Buskirk Avenue, Ste. 1000
Pleasant Hill, CA 94523
Tel: 925.233.5333

Fairfield
324 Campus Lane, Ste. A
Fairfield, CA 94534
Tel: 707.702.1961

www.coastlandcivil.com

The Sanitary Survey reports the capacity of the two RNVWD system wells as 414 gpm for Well 1 and 307 gpm for Well 2 in section 1.2. For determining the capacity of the system, the production capacity of 307 associated with Well 2 should be used. The total storage of the system is 0.611 million gallons in Section 2.4 of the Sanitary Survey. The total number of connections in the system is listed as 398 in Section 2.1.3 of the Sanitary Survey.

The available maximum monthly demands for the system were in August and September 2020. However, these dates coincide with the LNU fire and the unprecedented fire flow demands on the RNVWD and other water systems. This data is not representative and therefore should not be used. The highest peak monthly production rate was reported in the 2019 EAR as 9,923,000 gallons in August.

The capacity of the RNVWD system per Title 22 is therefore calculated as follows:

- The average daily demand for the 398 connections in the maximum month is: 9,923,000 gallons / 31 days = 320,097 gallons per day, or 0.320 million gallons per day (MGD).
- The MDD is : 0.320 x 1.5 = 0.480 MGD
- The total system capacity is:
  0.442 MG (total daily production at 307 gpm)
  +0.611 MG (total system storage)
  1.053 MG

Service Capacity of the RNVWD System

With a MDD of 0.480 MGD and a system capacity of 1.053 MG, the current system is operating at 46% of its Title 22 capacity. The maximum number of connections that the system can service is therefore **873 connections**.