State Water Resources Control Board
Division of Drinking Water

Sent via email: *SCatron@newportbeachca.gov*

August 11, 2023

Mr. Steffen Catron
City of Newport Beach
949 W. 16th Street
Newport Beach, CA 92663

Dear Mr. Catron:

SYSTEM NO. 3010023 – CITY OF NEWPORT BEACH WELL BLENDING PLAN

On May 31, 2023, Mr. Toan Van of your staff submitted the City of Newport Beach's (hereinafter "City's") Well Blending Plan (hereinafter "Plan") for Perfluorohexanesulfonic Acid (PFHxS) detected in the Dolphin Shallow and Tamura Shallow Wells to the State Water Resources Control Board, Division of Drinking Water (hereinafter "Division").

The Division received the proposed Plan to reduce the concentration of PFHxS in the water served to customers to below the notification level (NL) of 3 nanograms per liter (ng/L),which is also the Consumer Confidence Report Detection Level (CCRDL). The Division provided comments via emails on June 1st, 15th, and 19th and in response to which the City requested a meeting via Microsoft Teams on June 21, 2023. The Division again provided comments and sample calculations via emails on June 21st and 22nd, July 20th and 27th, following which the City submitted the final Plan on July 27, 2023. The final Plan indicates that Dolphin Shallow and Tamura Shallow Wells must always be operated with a deep well.

The Division has reviewed and determined that the revised City of Newport Beach Well Blending Plan dated May 2023 is approved. Based on the sum of the production capacities of the two shallow wells and a deep well, this City's blending facility is classified as a T2 Treatment Facility and it must be operated, maintained, and monitored in accordance with this Division-approved blending plan. The designated PS Codes for the blending facility is listed in the table below.

Sampling Location	**PS Code**	**Capacity** (gpm)
Dolphin Avenue Deep Well	CA3010023_002_002	3,000
Dolphin Avenue Shallow Well	CA3010023_003_003	2,500
Tamura School Deep Well	CA3010023_004_004	3,000
Tamura School Shallow Well	CA3010023_005_005	1,900
16th St. Reservoir Inlet	CA3010023_006_006	-

The City may modify this blending plan at any time to accommodate changing conditions; however, the modified plan must be submitted to and approved by the Division prior to implementation. At any time, the Division can require a plan to be modified due to changing conditions, changes in laws or regulations, or concerns of the public.

If you have any questions, please contact Anthony Nhan at (714) 567-7261 or Anthony.Nhan@waterboards.ca.gov.

Sincerely,

Digitally signed by Oliver C. Pacifico
Date: 2023.08.11 15:54:54 -07'00'
Water Boards

Oliver C. Pacifico, P.E.
District Engineer, Santa Ana District
Division of Drinking Water

Enclosures: 1) City of Newport Beach Well Blending Plan dated May 2023
2) Treatment Classification Worksheet

cc: Orange County Health Care Agency
(letter only)

Toan Van
City of Newport Beach

Patrick Versluis
Orange County Water District

Landin Miller
City of Newport Beach
LMiller@newportbeachca.gov

City of Newport Beach
Well Blending Plan

System Number: 3010023

May 2023

Introduction

The City of Newport Beach has detected PFHxS above the notification level (NL) in two of its lowest producing wells, Dolphin Shallow and Tamura Shallow. Dolphin Shallow and Tamura Shallow wells are two of four (4) active wells currently producing drinking water for the residents of Newport Beach. Below is a detailed description of the City's sources and blending plan to lower the detection level of PFHxS below the NL or to the non-detect (ND) level and attached to this plan is the "Calculated Concentrations" for the many operational scenarios.

Background

The Orange County Water District Act was passed by the California Legislature in 1933 and authorized Orange County Water District (OWCD), to manage, regulate, replenish, and protect the quality and quantity of the Orange County Groundwater Basin within its boundaries. City of Newport Beach groundwater production is under OCWD jurisdiction. The City of Newport Beach operates a water system in Orange County, CA for the purpose of delivering potable water to its residents.

Water Sources

The City's source of water is imported surface water and groundwater. Surface Water is purchased from the Metropolitan Water District (MWD) through the wholesale agency Municipal Water District of Orange County (MWDOC). The imported water originates from the Colorado Water Aqueduct and the State Water Project. This water is filtered and treated at the Diemer Filtration Plant in Yorba Linda, California. From there the water either enters the City's distribution system, or is stored at the City's finished water reservoir, Big Canyon Reservoir (BCR). For water stored at BCR, Chlorine and ammonia is added on the effluent line prior to entering the distribution system to bring the monochloramine disinfectant residual back up to normal levels.

Groundwater is pumped from the four wells in Fountain Valley and delivered to the 16th Street Reservoir. The City chlorinates the influent to create a free-chlorine residual and adds chlorine and ammonia to the effluent to create a monochloramine disinfect residual.

Well Production and Operational Scenario:

The City of Newport Beach has 4 potable wells located in the City of Fountain Valley and are listed as: Dolphin Deep Well, Dolphin Shallow Well, Tamura Deep Well, and Tamura Shallow Well. All four wells are operated with variable frequency drives (VFD's). Below are their normal pumping capacities when pumping by themselves:

Dolphin Deep	3000 GPM
Dolphin Shallow	2500 GPM
Tamura Deep	3000 GPM
Tamura Shallow	1900 GPM

The City of Newport Beach will produce up to 85% of its annual demand from these 4 wells. During the winter months of December-April, 90% of the city's demand will be met from the wells; during summer months of May-November, demand will be met by a blend of well water and imported water. The city's groundwater sources will produce approximately 80% of the summer demand as required to meet the Basin Pumping Percentage (BPP) set annually by the Orange County Water District.

Description of the Blending Operation

Through the 36" Ductile Iron Pipe and Asbestos Cement Pipe transmission main, inline blending naturally takes place as groundwater is transported 7 ½ miles from the wells in the City of Fountain Valley to the City of Newport Beach's 16th Street Reservoir. Water

tested by OCWD samplers at the reservoir entry point yielded non-detect (ND) for PFAS compounds maintaining compliancy.

In accordance with the annual BPP established by OCWD, the City's Wells have historically produced water utilizing all four wells. Groundwater pumped from Dolphin Deep Well is blended with water from Dolphin Shallow Well in a common discharge line. The same configuration of operational procedures occurs at the Tamura Deep and Shallow wells. From the two well site's location, it is further blended through the 36" transmission main before entering the 16th Street Reservoir which has been determined to be the source point. Treated water with continuous blending takes place within the 16th Street Reservoir before being pumped into the effluent transmission line serving the residents of the City of Newport Beach.

Operations of the wells will vary depending on a variety of scenarios including seasonal demands, maintenance, and reservoir level management. These scenarios will dictate pumping capacity which will determine the different blending plans. In a worst-case operational scenario, production of one deep well and two shallow wells will still meet the blending goal of below the NL.

As an operational safety to maintain non-detect results for PFHxS compounds and ensure complete blending of groundwater produced, Dolphin Shallow Well and Tamura Shallow Well will not be solely in operation without a deep well in production.

Summary of Monitoring Frequencies and Reporting

Monitoring frequencies and reporting are in accordance with monitoring Order DW 2022-0001-DDW, issued by the State Water Resources Control Board Division of Drinking Water. In addition to the current monitoring order frequency for specific wells in operation, the City of Newport Beach 16th Street Reservoir will concurrently be tested with the same required frequency while also adding additional field duplicate for each testing. The reservoir sampling point will be at the well's discharge line and the pipeline's effluent, which is the reservoir's influent.

Steffen Catron
Chief Water Operator
City of Newport Beach

Toan Van
Water Quality Coordinator
City of Newport Beach

Landin Miller
Chief Shift Operator
City of Newport Beach

Attachment

Calculated Concentrations

Testing Results: July 18, 2022

Pumping Capacity and PFHxS Calculated Concentrations:

Dolphin Deep = 3000 gpm PFHxS = 0

Dolphin Shallow = 2500 gpm PFHxS = 3.2 ng/L

Tamura Deep = 3000 gpm PFHxS = 0

Tamura Shallow = 1900 gpm; PFHxS = 4.2 ng/L

Dolphin Deep + Dolphin Shallow + Tamura Deep + Tamura Shallow:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{ds} \times C_{ds}) + (V_{td} \times C_{td}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(3000 + 2500 + 3000 + 1900) \times C_b = (3000 \times 0) + (2500 \times 3.2) + (3000 \times 0) + (1900 \times 4.2)$

$10400 \times C_b = 0 + 8000 + 0 + 7980$

$C_b = 15980 / 10400$

$C_b = 1.5$ ng/L

Dolphin Deep + Dolphin Shallow + Tamura Deep:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{ds} \times C_{ds}) + (V_{td} \times C_{td})$ where C_b = calculated concentration of blended water

$(3000 + 2500 + 3000) \times C_b = (3000 \times 0) + (2500 \times 3.2) + (3000 \times 0)$

$8500 \times C_b = 0 + 8000 + 0$

$C_b = 8000 / 8500$

$C_b = 0.9$ ng/L

Dolphin Deep + Tamura Deep + Tamura Shallow:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{td} \times C_{td}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(3000 + 3000 + 1900) \times C_b = (3000 \times 0) + (3000 \times 0) + (1900 \times 4.2)$

$7900 \times C_b = 0 + 0 + 7980$

$C_b = 7980 / 7900$

$C_b = 1.0$ ng/L

Dolphin Deep + Tamura Deep:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{td} \times C_{td})$ where C_b = calculated concentration of blended water

$(3000 + 3000) \times C_b = (3000 \times 0) + (3000 \times 0)$

$6000 \times C_b = 0 + 0$

$C_b = 0 / 6000$

C_b = ND

Dolphin Deep + Dolphin Shallow + Tamura Shallow:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{ds} \times C_{ds}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(3000 + 2500 + 1900) \times C_b = (3000 \times 0) + (2500 \times 3.2) + (1900 \times 4.2)$

$7400 \times C_b = 0 + 8000 + 7980$

$C_b = 15980 / 7400$

$C_b = 2.2$ ng/L

Attachment

Calculated Concentrations

Testing Results: July 18, 2022

Dolphin Deep + Dolphin Shallow:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{ds} \times C_{ds})$ where C_b = calculated concentration of blended water

$(3000 + 2500) \times C_b = (3000 \times 0) + (2500 \times 3.2)$

$5500 \times C_b = 0 + 8000$

$C_b = 8000 / 5500$

$C_b = 1.4$ ng/L

Dolphin Deep + Tamura Shallow:

$V_b \times C_b = (V_{dd} \times C_{dd}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(3000 + 1900) \times C_b = (3000 \times 0) + (1900 \times 4.2)$

$4900 \times C_b = 0 + 7980$

$C_b = 7980 / 4900$

$C_b = 1.6$ ng/L

Dolphin Shallow + Tamura Deep + Tamura Shallow:

$V_b \times C_b = (V_{ds} \times C_{ds}) + (V_{td} \times C_{td}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(2500 + 3000 + 1900) \times C_b = (2500 \times 3.2) + (3000 \times 0) + (1900 \times 4.2)$

$7400 \times C_b = 8000 + 0 + 7980$

$C_b = 15980 / 7400$

$C_b = 2.2$ ng/L

Dolphin Shallow + Tamura Deep:

$V_b \times C_b = (V_{ds} \times C_{ds}) + (V_{td} \times C_{td})$ where C_b = calculated concentration of blended water

$(2500 + 3000) \times C_b = (2500 \times 3.2) + (3000 \times 0)$

$5500 \times C_b = 8000 + 0$

$C_b = 8000 / 5500$

$C_b = 1.4$ ng/L

Tamura Deep + Tamura Shallow:

$V_b \times C_b = (V_{td} \times C_{td}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(3000 + 1900) \times C_b = (3000 \times 0) + (1900 \times 4.2)$

$4900 \times C_b = 0 + 7980$

$C_b = 7980 / 4900$

$C_b = 1.6$ ng/L

Dolphin Shallow + Tamura Shallow:

$V_b \times C_b = (V_{ds} \times C_{ds}) + (V_{ts} \times C_{ts})$ where C_b = calculated concentration of blended water

$(2500 + 1900) \times C_b = (2500 \times 3.2) + (1900 \times 4.2)$

$4400 \times C_b = 8000 + 7980$

$C_b = 15980 / 4400$

$C_b = 3.6$ ng/L