Exhibit "A"

IRVINE RANCH WATER DISTRICT
REPORT ON WATER QUALITY
RELATIVE TO PUBLIC HEALTH GOALS
JULY 1, 2025
PWS #3010092

BACKGROUND:

Provisions of the California Health and Safety Code[1] specify that larger (>10,000 service connections) water utilities prepare a special report by July 1, 2025, if the utilities' water quality measurements have exceeded any Public Health Goals (PHGs). PHGs are non-enforceable goals established by the California Environmental Protection Agency's (Cal- EPA's) Office of Environmental Health Hazard Assessment (OEHHA). The law also requires that where OEHHA has not adopted a PHG for a constituent, the water suppliers are to use the Maximum Contaminant Level Goals (MCLGs) adopted by United States Environmental Protection Agency (USEPA). Only constituents that have a primary drinking water standard and for which either a PHG or MCLG has been set are to be addressed.[2]

The law specifies what information is to be provided in the report.[3]

If a constituent was detected in IRWD's water supply in 2022, 2023 or 2024 at a level exceeding an applicable PHG or MCLG, this report provides the information required by law. Included is the numerical public health risk associated with the MCL and the PHG or MCLG, the category or type of risk to health that could be associated with each constituent, the best treatment technology available that could be used to reduce the constituent level, and an estimate of the cost to install that treatment if it is appropriate and feasible.

What Are PHGs?

PHGs are set by OEHHA and are based solely on public health risk considerations. None of the practical risk-management factors that are considered by the USEPA or the California State Water Resources Control Board Division of Drinking Water (DDW) in setting drinking water standards (MCLs) are considered in setting the PHGs. These factors include analytical detection capability, treatment technology available, and benefits and costs. The PHGs are not enforceable and are not required to be met by any public water system. MCLGs are the federal equivalent to PHGs.

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[1] California Health and Safety Code Section 116470
[2] Table of Regulated Constituents with MCLs, PHGs or MCLGs
[3] See footnote 1 above

Water Quality Data Considered:

All water quality data collected by the IRWD system from 2022 to 2024 for purposes of determining compliance with drinking water standards was considered. Additional data was collected by the Orange County Water District (OCWD) on behalf of IRWD for groundwater wells within the jurisdiction of the OCWD. This data was summarized in the Annual Consumer Confidence Reports which were distributed to all customers in 2022, 2023 and 2024.

Guidelines Followed:

The Association of California Water Agencies (ACWA) formed a workgroup that prepares guidelines for water utilities to use in preparing these required reports, and these guidelines were used in the preparation of this report including the cost estimates. No guidance is available from state regulatory agencies.

Best Available Treatment Technology and Cost Estimates:

Both the USEPA and DDW adopt what are known as Best Available Technologies (BATs) which are the best-known methods of reducing contaminant levels to the MCL. Costs can be estimated for such technologies. However, since many PHGs and all MCLGs are set much lower than the MCL, it is not always feasible or even possible to determine what treatment is needed to further reduce a constituent to the PHG or MCLG, many of which are set at zero. Estimating the costs to reduce a constituent to zero is difficult because it is not possible to verify by analytical means that the level has been lowered to zero. In some cases, installing treatment to try and further reduce very low levels of one constituent may have adverse effects on other aspects of water quality.

CONSTITUENTS DETECTED THAT EXCEED A PHG OR A MCLG:

The following is a discussion of constituents that were detected in one or more of the IRWD's drinking water sources at levels above the PHG, or above the MCLG. Note that while a constituent may be detected above the PHG or MCLG, that does not mean that it was served to the public at that concentration or level. All of IRWD's wells are either treated or blended with other wells or sources of water (imported and local). Perchlorate, nitrate/nitrite nitrogen, and nitrate nitrogen were detected in one or more source wells above the PHG. However, the existing treatment processes in place reduced the concentration of these constituents to nondetectable levels or to levels less than the PHG. No further assessment of these constituents is needed.

Arsenic:

The PHG for arsenic is 0.004 parts per billion (ppb). The MCL, or drinking water standard, for arsenic is 10 ppb. There were nine detections in Dyer Road Wellfield (DRWF) wells at the following levels: 3ppb in DRWF Well 1, 2 ppb in DRWF Well 2, 3 ppb in DRWF Well 4, 10.6 ppb in DRWF Well 5, 2.1 ppb in DRWF Well 10, 2.2 ppb in DRWF Well 11, 2 ppb in DRWF Well 12, 2.3 ppb in DRWF Well 17, and 5.7 ppb in DRWF Well 18. The water from all DRWF wells in operation is blended prior to entering the drinking water distribution system. The highest concentration of arsenic measured at the entry point to the distribution system was 3.38 ppb (below the drinking water MCL).

There was arsenic detected in five Irvine Desalter Project (IDP) wells at the following levels: 5.7 ppb in IDP Well 76, 4.3 ppb in IDP Well 77, 4.9 ppb in IDP Well 107, 6.6 ppb in IDP Well 110 and 5.6 ppb in IDP Well 115. The highest concentration of arsenic detected in product water from the IDP Potable Treatment Plant (IDP/PTP) was 2.49 ppb. These levels were below the MCL.

Arsenic was detected in imported water treated at the Baker Water Treatment Plant (BWTP); the highest level detected was 4.89 ppb.

Best Available Technology

The category of health risk associated with arsenic, and the reason that a drinking water standard was adopted for it, is that some people who drink water containing arsenic above the MCL over many years may experience skin damage or circulatory system problems and may have an increased risk of cancer. The numerical health risk for cancer at a PHG of 0.004 ppb is 1x10-6 (1 in 1,000,000). The numerical health risk for cancer at an MCL of 10 ppb is 2.5x10-3 (2.5 in 1,000).

The BATs for arsenic to lower the level below the PHG are Reverse Osmosis (RO), Ion Exchange (IE), activated alumina, lime softening, electrodialysis reversal, oxidation/filtration or coagulation/filtration. RO or IE would be required to attempt to lower the arsenic levels to below the PHG. The IDP Potable Treatment Plant (PTP) is an RO facility which reduces arsenic levels in water from the IDP wells, though the plant would need to be operated with 0% bypass to achieve a concentration closer to the PHG. The estimated cost to install and operate such a treatment system on DRWF Wells 4, 5, 6 and 18 that would reliably reduce the arsenic levels to below the PHG would be approximately $20,960,000 per year including annualized capital and O&M costs. The estimated cost to install and operate such a treatment system at the BWTP that would reliably reduce the arsenic level to the PHG would be approximately $9,396,000 per

year including annualized capital and O&M costs. This would result in an assumed increased cost for each customer of $253 per year.

Coliform Bacteria:

Drinking water samples collected from the potable distribution system were positive for total coliform bacteria in the months of May 2022, September 2022, July 2023, October 2023, April 2024, and August 2024; the percent positives were 0.7%, 0.4%, 0.8%, 0.3%, 0.3%, 0.4%, and 0.4%, respectively. All total coliform positive samples were negative for E. coli bacteria. The MCL for coliform is 5% positive samples of all samples per month, and the MCLG is zero percent positive samples. The reason for the coliform drinking water standard is to minimize the possibility of the water containing pathogens (organisms that cause waterborne disease). Because coliform is only a surrogate indicator of the potential presence of pathogens, it is not possible to state a specific numerical health risk. While the USEPA normally sets MCLGs "at a level where no known or anticipated adverse effects on persons would occur", they indicate that they cannot do so with coliforms.

Coliform bacteria are an indicator organism that are ubiquitous in nature and are not generally considered harmful. They are used because of ease in monitoring and analysis. If a positive sample is found, it indicates a potential problem that needs to be investigated and follow up sampling done. It is not at all unusual for a system to have an occasional positive sample. It is difficult, if not impossible, to ensure that a system will never get a positive sample, or that inadvertent contamination of a sample will not occur.

Chlorine is added as a disinfectant at sources to ensure that the water served is microbiologically safe. The chlorine residual levels are carefully controlled to provide the best health protection without causing the water to have undesirable taste and odor or increasing the concentration of Disinfection Byproducts (DBP). The one single action that would most likely decrease the possibility of a system having positive coliform results would be to significantly increase the disinfectant residual. This would likely result in increased DBPs that have adverse health consequences. The limits to the amount of disinfectant residual allowed in the distribution system are the maximum residual disinfectant levels (MRDLs) as established by the Disinfectants and Disinfection Byproducts Rule (D/DBPR). This careful balance of treatment processes is essential to continue supplying our customers with safe drinking water.

Other equally important measures that have been implemented include: an effective cross-connection control program, maintenance of a disinfectant residual throughout our system, an effective monitoring and surveillance program, and maintaining positive pressures in our distribution system. Our system has already taken all of the steps described by DDW as "best

available technology" for coliform bacteria in Section 64447, Title 22, California Code of Regulations.

Fluoride:

The PHG for fluoride is 1 ppm (part per million). The MCL, or drinking water standard, for fluoride is 2 ppm. We have detected fluoride above the PHG in two of IRWD's 27 wells at the following levels: 1.15 ppm in DRWF Well C8 and 1.59 ppm in DRWF Well C9. The level detected was below the MCL. The category of health risk associated with fluoride, and the reason that a drinking water standard was adopted for it, is that people who drink water containing fluoride above the MCL throughout their lifetime could experience an increased risk of musculoskeletal disease and tooth mottling. The numerical health risk for cancer at a PHG of 1 ppm is not applicable. The numerical health risk for cancer at a MCL of 2 ppm is not applicable. The water is blended with water pumped from up to sixteen other wells located in the DRWF prior to delivery to the drinking water distribution system. The highest level of fluoride detected in the blended DRWF water was 0.83 ppm and the average level of fluoride in the blended DRWF was 0.59 ppm. Since the fluoride level in the blended DRWF water consistently does not exceed the PHG and the optimal level of fluoride in drinking water to prevent dental caries (or cavities) is 0.7 ppm no further treatment is necessary, so no cost estimate has been prepared.

Gross Alpha (excluding Uranium):

OEHHA has not established a PHG for gross alpha activity. The MCLG for gross alpha activity is 0 picocuries per liter (pCi/l). The MCL, or drinking water standard, for gross alpha activity is 15 pCi/l. Gross alpha activity was detected in five wells throughout the system at the following levels: 3.46 pCi/l in DRWF Well 1, 3.12 pCi/l in IDP Well 13, 3.33 pCi/l in IDP Well 76, 3.09 pCi/l in IDP Well 77, and 3.26 pCi/l in IDP Well 110. All levels were below the MCL.

Gross alpha activity was detected in imported water purchased from the MWD, and the highest level was 3 pCi/l. Gross alpha activity was detected in Well 21/22 Desalter product water and the highest level was 4.6 pCi/l. All levels were below the MCL.

The category of health risk associated with gross alpha activity, and the reason that a drinking water standard was adopted for it, is that people who drink water containing gross alpha activity above the MCL throughout their lifetime could experience an increased risk of cancer. The numerical health risk for an MCLG of 0 pCi/l is 0. Since gross alpha activity is not a specific chemical contaminant, but rather a group of radioactive elements, the numeric health risk at the

MCL of 15 pCi/l depends on the specific alpha emitting radionuclides present and is estimated to range from 1.0x10-3 (1 in 1,000) to 1.9x10-4 (1.9 in 10,000).

The BATs for gross alpha activity to lower the level below the MCL are RO, IX, lime softening or coagulation/filtration. RO or IX would be required to attempt to lower the gross alpha activity level to the MCLG. The IDP/PTP is an RO facility that reduces gross alpha activity levels in water from the IDP wells. The estimated cost to install and operate such a treatment system at the BWTP that would reliably reduce the gross alpha activity level to as close to the MCLG as possible would be approximately $9,396,000 per year including annualized capital and O&M costs. The estimated cost to install and operate such a treatment system at each MWD turnout that would reliably reduce the gross alpha activity level approaching the MCLG would be approximately $248,541,000 per year including annualized capital and O&M costs. This would result in an assumed increased cost for each customer of $2,149 per year.

Gross Beta Activity:

OEHHA has not established a PHG for gross beta activity. The MCLG for gross beta activity is 0 pCi/l. The MCL or drinking water standard for gross beta activity is 50 pCi/l. Gross beta activity was detected in imported water purchased from the MWD and the highest level detected was 7 pCi/l and 13.9 pCi/l at Well OPA 1. All levels were below the MCL.

The category of health risk associated with gross beta activity, and the reason that a drinking water standard was adopted for it, is that people who drink water containing gross beta activity above the MCL throughout their lifetime could experience an increased risk of cancer. The numerical health risk for an MCLG of 0 pCi/l is 0. Since gross beta activity is not a specific chemical contaminant, but rather a group of radioactive elements, the numeric health risk at the MCL of 50 pCi/l depends on the specific beta emitting radionuclides present and is estimated to range from 2.3x10-3 (2.3 in 1,000) to 4.5x10-4 (4.5 in 10,000).

The BATs for gross beta activity to lower the level below the MCL are RO, IX, lime softening or coagulation/filtration. RO or IX would be required to attempt to lower the gross beta activity level closer to the MCLG. The estimated cost to install and operate such a treatment system at each MWD turnout that would reliably reduce the gross beta activity level closer to the MCLG would be approximately $248,541,000 per year including annualized capital and O&M costs. This would result in an assumed increased cost for each customer of $2,071 per year.

Hexavalent Chromium:

The PHG for hexavalent chromium is 0.02 ppb. The MCL for hexavalent chromium is 10 ppb. Hexavalent chromium was detected in fourteen Dyer Road Wellfield wells at the following

concentrations: 1.05 ppb in DRWF Well 1, 0.5 ppb in DRWF Well 2, 0.39 ppb in DRWF Well 4, 0.43 ppb in DRWF Well 7, 0.49 ppb in DRWF 10, 0.92 ppb in DRWF Well 11, 0.84 ppb in DRWF Well 12, 0.1.54 ppb in DRWF Well 13, 1.3 ppb in DRWF Well 14, 0.75 ppb in DRWF Well 15, 0.43 ppb in DRWF Well 16, 0.86 ppb in DRWF Well 17, 0.48 ppb in DRWF Well 18, and 0.1 ppb in DRWF Well C8. The water from all DRWF wells in operation is blended prior to entering the IRWD's drinking water distribution system. Hexavalent chromium was detected in three IDP wells at the following levels: 1.05 ppb in IDP Well 76, 0.32 ppb in IDP Well 107, and 0.21 ppb in IDP Well 110. The highest concentration of hexavalent chromium detected in product water from the IDP/PTP was 0.05 ppb. Hexavalent chromium was detected at 0.75 ppb in Well 21, 0.24 ppb in Well 22, and 0.3 ppb in OPA Well 1. Hexavalent chromium was detected in treated imported water produced at the BWTP; the highest level detected was 0.02 ppb, equivalent to the PHG.

The category of health risk associated with hexavalent chromium, and the reason a drinking water standard was adopted for it, is that people who consume water containing hexavalent chromium above the regulatory limit throughout their lifetime could experience an increased risk of cancer, primarily stomach cancer. The California OEHHA has established a PHG of 0.02 ppb, which corresponds to a one-in-a-million (1×10^{-6}) lifetime cancer risk. The estimated numerical health risks for hexavalent chromium at higher concentrations range from approximately 1×10^{-3} (1 in 1,000) to 1.9×10^{-4} (about 2 in 10,000), depending on the level of exposure. The BATs for hexavalent chromium to lower the level below the PHG are Ion Exchange (IX) – weak base anion resin, RO, and coagulation/filtration. IX or RO would be required to attempt to lower the hexavalent chromium level below the PHG. The estimated cost to install and operate an IX – weak base anion resin treatment would be approximately $142,946,478.00 per year including annualized capital and O&M costs. This would result in an assumed increased cost for each customer of $1,145 per year.

Uranium:

The PHG for uranium is 0.43 pCi/l. The MCL, or drinking water standard, for uranium is 20 pCi/l. Uranium was detected in nine wells at the following levels: 1.28 pCi/l in DRWF Well 13, 1.63 pCi/l in DRWF Well 16, 1.01 pCi/l in DRWF Well 17, 1.2 pCi/l in OPA Well 1, 5.78 pCi/l in IDP Well 76, 5.71 pCi/l in IDP Well 77, 5.89 pCi/l in IDP Well 107, 5.96 pCi/l in IDP Well 110, 5.01 pCi/l in IDP Well 115, 1.03 pCi/l in Well 21, and 0.91 pCi/l in Well 22. The IDP/PTP is an RO facility which reduces uranium levels in water from the IDP wells.

Uranium was detected in the IDP/PTP product water at a level of 3.4 pCi/l. Uranium was detected in product water from the BWTP, the highest level detected was 2.2 pCi/l. Uranium was detected in imported water purchased from the MWD, the highest level detected was 3 pCi/l. These levels were below the MCL.

The category of health risk associated with uranium, and the reason that a drinking water standard was adopted for it, is that people who drink water containing uranium above the MCL throughout their lifetime could experience kidney problems or an increased risk of cancer. The numerical health risk for cancer at a PHG of 0.43 pCi/l is 1x10-6 (1 in 1,000,000). The numerical health risk for cancer at a MCL of 20 pCi/l is 5x10-5 (5 in 100,000). The BATs for uranium to lower the level below the MCL are RO, IX, lime softening or coagulation/filtration. RO or IX would be required to attempt to lower the uranium level to below the PHG. The IDP/PTP and the Well 21/22 Desalter are RO facilities which reduce uranium levels in water from the IDP wells and Well 22, though the plants would probably need to be operated with 0% bypass to meet the PHG. The estimated cost to install and operate such a treatment system at the BWTP that would reliably reduce the uranium level to the MCLG would be approximately $9,396,000 per year including annualized capital and O&M costs. The estimated cost to install and operate such a treatment system at each MWD turnout that would reliably reduce the uranium level to the MCLG would be approximately $248,541,000 per year including annualized capital and O&M costs. This would result in an assumed increased cost for each customer of $2,149 per year.

Combined Treatment Cost:

Since the same technology is utilized to treat all of the constituents included in this report each of the locations above would only require a single treatment facility to reduce levels of all of these constituents to below the PHG or MCLG. The estimated cost to install and operate such a treatment system on DRWF Wells 4, 5 6 and 18 that would reliably reduce the levels of arsenic to levels below the PHG or MCLG would be approximately $20,960,000 per year including annualized capital and O&M costs. The estimated cost to install and operate such a treatment system at the BWTP that would reliably reduce the gross alpha activity and uranium levels (and chlorite levels, also) to the PHG or MCLG would be approximately $9,396,000 per year including annualized capital and O&M costs. The estimated cost to install and operate such a treatment system at each MWD turnout that would reliably reduce the gross alpha activity, gross beta activity and uranium levels to the PHG or MCLG would be approximately $248,541,000 per year including annualized capital and O&M costs. This would result in an assumed increased cost for each customer of $2,324 per year to lower the levels of Arsenic, gross alpha activity, gross beta activity and uranium to levels below the PHG or MCLG.

SUMMARY OF PHG EXCEEDENCES:

CONTAMINANT	UNITS	PHG [MCLG]	MCL	Level of Detection
Arsenic	ppb	0.004	10	ND – 10.6
Coliform Bacteria	% Present	0	5	0 – 0.8
Fluoride	ppm	1	2	ND – 1.59
Gross Alpha Activity	pCi/L	[0]	15	ND – 4.6
Gross Beta Activity	pCi/L	[0]	50	ND – 13.9
Hexavalent Chromium	ppb	0.02	10	ND – 1.54
Uranium	pCi/L	0.42	20	ND – 5.96

As noted above, perchlorate, nitrate/nitrite nitrogen, and nitrate nitrogen were detected in one or more source wells above the PHG. However, the existing treatment processes in place reduced the concentration of these constituents to nondetectable levels or to levels less than the PHG. No further assessment of these constituents is needed for this report.

RECOMMENDATIONS FOR FURTHER ACTION:

The drinking water quality of the Irvine Ranch Water District meets all DDW and USEPA drinking water standards set to protect public health. To further reduce the levels of the constituents identified in this report that are already significantly below the health based MCLs established to provide “safe drinking water”, additional costly treatment processes would be required. The effectiveness of the treatment processes to provide any significant reductions in constituent levels at these already low values is uncertain. The health protection benefits of these further hypothetical reductions are not at all clear and may not be quantifiable. Therefore, no action is proposed.

REFERENCE:

1. California Health & Safety Code: Section 116470 (b)
2. Table of Regulated Constituents with MCLs, PHGs or MCLGs
3. Health Risk Information for Public Health Goal Report, February 2025