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MEMORANDUM

To: Jason Franklin, General Manager
Pinedale County Water District

From: Kevin Berryhill, P.E.

Subject: Executive Summary – PFAS Detection at Well 9

Date: Publish Date

BACKGROUND:

In 2024, the State Water Resources Control Board ordered that all public water systems test their water sources for the presence of Per- and Polyfluoroalkyl Substances (PFAS). Several PFAS substances were detected at PCWD Well 9. The levels of some PFAS detected at Well 9 exceed current drinking water standards. The results of the PFAS tests are summarized below:

PFAS	SAMPLE RESULT (Parts per Trillion)	EXCEEDS REGULATORY LIMIT
PFOA	11	Federal and State
PFOS	7	Federal and State
PFHxS	3.7	State
PFBS	5.4	
PFBA	6.1	
PFHpA	13	
PFHxA	14	

Well 9, which is located near the intersection of Herndon Avenue and Highway 41, and produces approximately 900 gallons per minute, is an important well due to it's favorable location for maintaining pressures in the southeastern portion of the District's service area.

WHAT ARE PFAS

PFAS are a large group of man-made fluorinated organic substances consisting of thousands of related chemicals. PFAS are known for their oil and water repelling properties and have been used in a wide range of products since the 1940s including non-stick pans, food packaging, raincoats, stain resistant carpet, etc. However, most of the PFAS groundwater contamination in the Central Valley can be traced to the use of firefighting foams known as aqueous film-forming foams (AFFF) which were most frequently used at airports, metal plating facilities, landfills, and wastewater treatment plants. PFAS are very resistant to environmental and thermal breakdown leading to them being commonly referred to as "forever chemicals".

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Most Americans (as many as 97%) have PFAS in their blood due to environmental exposure. There is a large body of evidence that exposure to certain PFAS can result in a range of adverse health effects including increased risk of cancer, changes in cholesterol and liver enzymes, reproductive effects, and developmental delays in children.

HOW ARE PFAS IN DRINKING WATER REGULATED

Regulation of PFAS in drinking water is proceeding independently by the United States Environmental Protection Agency (EPA) at the federal level and at the California State Water Resources Control Board. It is important to consider that additional, more restrictive, PFAS regulations may be adopted by the EPA and/or the State Water Resources Control Board in the near future.

Federal Regulations

In 2024, the EPA adopted enforceable drinking water maximum contaminant levels (MCLs) for six specific PFAS. However, the current administration intends to rescind some of those limits. It is anticipated that two MCLs will remain in effect. Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) will each be limited to 4.0 parts per trillion (ppt). Under the current regulation, water systems would have until 2029 to implement solutions to reduce PFAS to below those levels.

PFAS	MCLG	MCL
PFOA	0	4.0 ppt
PFOS	0	4.0 ppt
PFHxS (Under Review)	10 ppt	10 ppt
GenX (Under Review)	10 ppt	10 ppt
PFNA (Under Review)	10 ppt	10 ppt
Mixture of two or more: PFHxS, PFNA, GenX, and PFBS (Under Review)	Hazard Index of 1	Hazard Index of 1

State Regulations

California is in the process of developing enforceable MCLs for PFAS. In the meantime, the State has put in place non-enforceable, advisory limits known as Notification Levels (NLs) and Response Levels (RLs).

PFAS	NL	RL
PFOA	5.1 ppt	10 ppt
PFOS	6.5 ppt	40 ppt
PFHxS	3 ppt	20 ppt
PFBS	500 ppt	5,000 ppt

NLs are set at lower values than RLs. When a water system exceeds a NL, the system must:

- Notify its governing body.
- Notify “any local agencies whose jurisdictions include areas supplied with their drinking water (i.e. the City of Fresno and County of Fresno).
- Include notification of the exceedance in its consumer confidence report.

When a water system exceeds the higher RL value, the system must:

- Take the source out of service or provide public notification within 30 days

The levels of PFAS at Well 9 exceed the enforceable EPA MCLs for PFOA and PFOS, the California NLS for PFOS and PFHxS, and the California RL for PFOA. Exceedance of the California RL for PFOA requires the District to take immediate actions (see above).

ALTERNATIVES FOR MITIGATING THE CONTAMINATION:

The following alternatives should be considered to address the PFAS contamination:

1. Replacing the well
2. Purchasing water from the City of Fresno to supplement supplies in the area near Well 9
3. Blending (not feasible)
4. Treating the water produced by the well

For the treatment alternative, there are two treatment processes that could be considered:

1. Granular activated carbon (GAC)
2. Single use ion exchange resin (IX)

Both processes would be similar in operation. These are mostly passive processes, with no automation typically required. Water flows through pressure vessels containing either activated carbon or ion exchange resin (not unlike a large Brita pitcher). The PFAS are removed from the water by the carbon or resin. When the capacity of the carbon or resin is used up, it will need to be disposed of and replaced with fresh media. Backwashing and/or flushing of the media is typically only required immediately after new media is installed.

Treatment of the 900 gpm produced by Well 9 using GAC would require four 10-foot or 12-foot diameter pressure vessels. Treatment using IX would require two 10-foot diameter vessels. The IX resin is more efficient than GAC media at removing PFAS and would generally be lower in capital costs, but the resin is also significantly more expensive than carbon to replace.

A more detailed analysis would need to be performed to determine which process would provide the lowest lifetime cost. Rough order of magnitude costs for constructing GAC and IX treatment plants are \$2.5 million and \$1.75 million respectively. A rough order of magnitude cost for periodic replacement of the media is \$275 – \$400 per million gallons treated.

POTENTIAL PROJECT FUNDING SOURCES

Several manufacturers of PFAS-containing aqueous film-forming foam (AFFF) have reached settlements in a multi-district product liability lawsuit. It is our understanding that the District has opted out of those settlements and would therefore need to pursue litigation with potential responsible parties independently.

PCWD appears to be classified by the State as a small disadvantaged community (DAC) and should therefore be eligible for funding in the form of grant or principal forgiveness loans through the Safe Drinking Water State Revolving Fund (DWSRF) program. Subject to State approval, these funds might be used for either construction of a replacement well or construction of a treatment plant. However, even if the District is eligible, funding would be subject to the limitation of funds available to the program. The next step in this funding process would be to reach out to the Division of Financial Assistance (DFA) to confirm eligibility and to gauge the availability of funds.