CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

June 4, 2025

2024 RESULTS SUMMARY

CITY OF TUCSON | TUCSON WATER

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CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM ACRONYMS

CAVSARP Central Avra Valley Storage and Recovery Project

CEC Contaminants of Emerging Concern

CEPDS Combined Entry Points to the Distribution System

EPA United States Environmental Protection Agency

EPDS Entry Points to the Distribution System

HA Health Advisory

MCL Maximum Contaminant Level

n Number of samples

PFAS Per- and Polyfluoroalkyl Substances

PFOA Perfluorooctanoic acid

PFOS Perfluoroocatanesulfonic acid

ppb Parts per billion

ppt Parts per trillion

PWS Public Water System

SAVSARP Southern Avra Valley Storage and Recovery Project

TARP/AOP Tucson Airport Remediation Project/Advanced Oxidation Process

TCE Trichloroethylene

UCMR Unregulated Contaminant Monitoring Rule

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

1.0 EXECUTIVE SUMMARY

Tucson Water is committed to providing high-quality, safe drinking water and closely monitors contaminants of emerging concern (CECs) in Tucson's water supplies. CECs are naturally occurring or manufactured pollutants that may cause adverse health impacts on humans, aquatic life, and/or the environment. Under the direction of the City Manager, Tucson Water established the annual "CEC Sentry Program" in 2008. The CEC Sentry Program is a proactive, voluntary monitoring component of Tucson Water's routine water quality management program. Results of the 2024 CEC Sentry Program summarized in this report are consistent with historical CEC data. To keep water supplies safe and protect public health, the Tucson Water CEC Sentry Program aims to:

- Continue biannual sampling of potable, non-potable, and reclaimed water systems.
- Maintain baseline data to monitor current water quality conditions and trends.
- Collect data to support the assessment of regulatory issues.
- Develop source water protection measures.
- Preserve a high-quality water supply.
- Assess a robust and evolving list of analytes.
- Collaborate with other local water utilities and stakeholders.
- Update Tucson Water's website with prior years CEC Sentry Program reports.

2.0 BACKGROUND

CECs are newly identified or re-emerging, manufactured, or naturally occurring compounds that 1) may lack public health data and 2) are not regulated by the United States Environmental Protection Agency (EPA). EPA establishes Maximum Contaminant Levels (MCLs) – also known as drinking water standards for public water systems (PWSs) to follow. MCLs are regulatory threshold limits on the amount of a substance allowed to be in drinking water served by a PWS, such as Tucson Water. EPA has established MCLs for over 90 contaminants. However, due to the cumbersome regulatory rule making processes, treatment limitations, and critical research gaps in CEC toxicity and CEC mixtures as well as cumulative CEC exposure over time, the EPA has not established MCLs or Health Advisories (HAs) for many CECs. HAs are non-regulatory, non-enforceable guidelines to prevent adverse health outcomes.

PFAS Regulatory Update

Per- and polyfluoroalkyl substances (PFAS) are a large group of man-made chemicals that contain multiple fluorine atoms bonded to carbon chains. Known for their resistance to heat, water, and oil, PFAS have been widely used in industrial processes and consumer products. PFAS can be found in firefighting foam, nonstick cookware, waterproof clothing, oil resistant food packaging, shampoo, floss, and more. Their chemical stability makes them persistent in the environment and the human body, raising concerns about potential health impacts and giving them the popular name—forever chemicals.

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

For the first time in decades, the EPA established drinking water standards for six PFAS compounds in April 2024. These standards are intended to reduce exposure to these substances, which have been linked to health issues such as cancer and liver damage.

Though the EPA PFAS standards require PWSs to monitor and report PFAS findings by 2027, Tucson Water has been proactive in addressing PFAS contamination. Since 2018, Tucson Water has conducted extensive testing across the system, exceeding federal guidelines by voluntarily removing wells from service if any detectable levels of perfluorooctanoic acid (PFOA) or perfluoroocatanesulfonic acid (PFOS) are found.

Tucson Water remains committed to delivering high-quality water that meets or surpasses federal standards, ensuring the continued safety of our community's drinking water. Several PFAS are assessed in this report.

2024 Sentry Monitoring Program Overview

Of the 131 CEC analytes assessed in Tucson Water's 2024 Sentry Monitoring Program, only nine CECs (or mixture of CECs) have a HA or MCL (**Table 1**). It is important to note that though there is an MCL for total chromium (100 parts per billion [ppb]), the 2024 Sentry Monitoring Program assessed for hexavalent chromium (valence state of naturally occurring chromium), which does not have an MCL standard. In the event that the EPA establishes a new MCL for CECs, Tucson Water's CEC Sentry Program will equip the PWS with the tools necessary to monitor the emerging contaminants.

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

Table 1. CECs with HA or MCLs

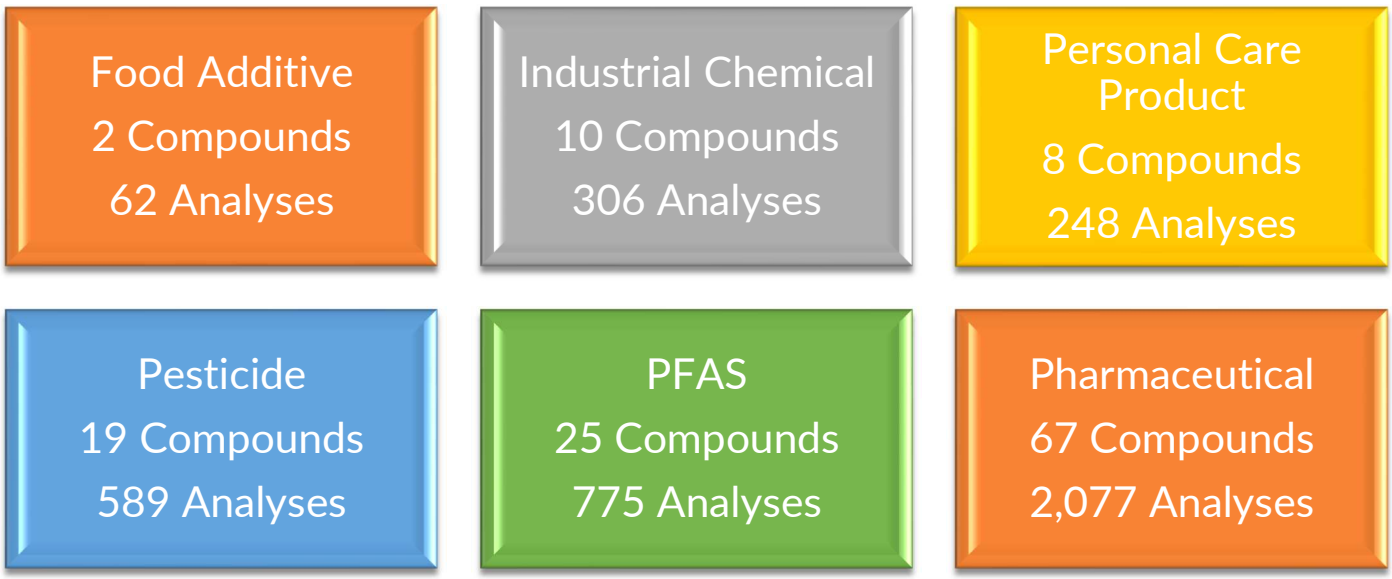
The Contaminants of Emerging Concern (CECs) included in the 2024 CEC Sentry Program Report with a federally established Maximum Contaminant Level (MCL) or Health Advisory (HA).

Type of CEC	Analyte Name	Type of Federal Regulation	Drinking Water Quality Standard
Industrial	1,4-Dioxane	HA	0.35 ppb
Pesticide	Simazine	MCL	400 ppt
	Atrazine	MCL	300 ppt
PFAS	PFOS	MCL	4 ppt
	PFOA	MCL	4 ppt
	PFHxS	MCL	10 ppt
	PFNA	MCL	10 ppt
	GenX	MCL	10 ppt
	Mixture of two or more PFNA, PFHxS, PFBS, GenX Chemicals	MCL	1.0 Unitless Hazard Index (HI)*

GenX Chemicals: Hexafluoropropylene oxide dimer acid
HA: Federally established Health Advisory, recommended guideline
MCL: Federally established Maximum Contaminant Level, enforceable
PFAS: Per- and polyfluoroalkyl substances
PFBS: Perfluorobutane sulfonic acid
PFHxS: Perfluorohexanesulfonic acid
PFNA: Perfluorononanoic acid
PFOA: Perfluorooctanoic acid
PFOS: Perfluoroocatanesulfonic acid
ppb: parts per billion
ppt: parts per trillion
*If it is determined that a sample has two or more of PFNA, PFHxS, PFBS, GenX Chemicals, the PFAS HI is calculated. The HI MCL is calculated by taking the measured concentration of each PFAS and dividing PFHxS by 9 ppt, PFNA by 10 ppt, PFBS by 2000 ppt, and GenX by 10 ppt. The total of these four ratios cannot exceed 1.0.

Typically, CECs are categorized by their type and source. For this report, the following CEC categories are used: 1) food additives, 2) industrial chemicals, 3) personal care products, 4) pesticide compounds, 5) PFAS, and 6) pharmaceutical compounds (**Figure 1**). In total, 131 CEC analytes were assessed, and 4,057 assessments were conducted.

Figure 1. CEC Categories and Analyses



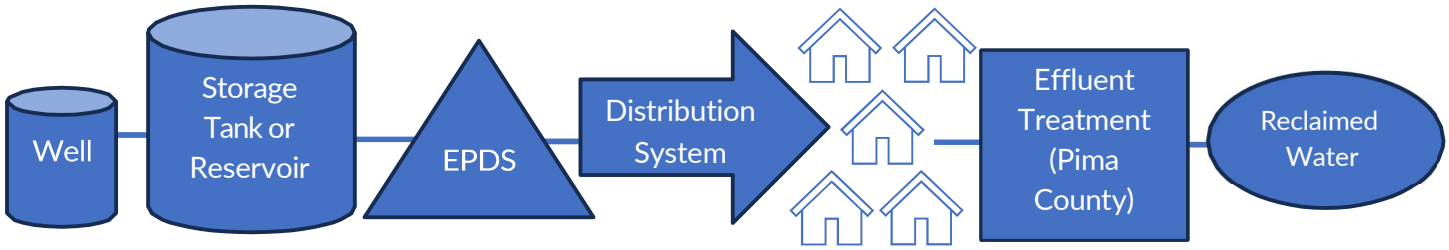
CEC: Contaminants of emerging concern
PFAS: Per- and polyfluoroalkyl substances

3.0 SAMPLING SITES

Tucson Water has over 170 active production groundwater wells that supply nearly 30 billion gallons of water to approximately 730,000 customers each year. To obtain a holistic assessment of CECs within the 390 square-mile service area, Tucson Water identified 17 sampling sites to assess CEC prevalence within its water service area. Samples were pulled directly from the wells, storage tanks or reservoirs, entry points to distribution system (EPDS), and reclaimed water systems (**Figure 2**).

Figure 1. Distribution System Overview

Overview of a portion of Tucson Water's Distribution System relevant to the 2024 CEC Sentry Program Report. Following well extraction, potable water is treated. EPDS represents treated water from the entry point to the distribution system that serves Tucson Water customers.



Water sources were categorized as potable, suitable for drinking, cooking, and personal hygiene, and non-potable, comprising untreated or reclaimed water. Of the 17 sampling sites, 9 were potable, including entry points and combined entry points to the distribution system (CEPDS) as well as a reservoir.

These sites provided insights into treated effluent impacts, blended water supplies, and various water distribution entry point locations. The remaining 8 sites were non-potable, including inactive or standby potable wells, untreated groundwater entering treatment plants, and both untreated and treated reclaimed water. Reclaimed water is highly treated effluent used for non-potable applications such as irrigation, dust control, firefighting, and industrial uses. This comprehensive approach ensures thorough understanding of water quality across different water sources and treatment processes. Details on site selection are found below (**Figure 3**).

3.1 Impacted by Treated Effluent

Samples were collected at three EPDS at native groundwater wells located in close proximity to the Santa Cruz River, downstream of Pima County's Agua Nueva Wastewater Reclamation and Tres Rios Wastewater Reclamation facilities. These three sampling sites represent drinking water wells impacted by treated effluent.

1. EPDS 166 (Y-001B) represents an out of service potable well – inactive (non-potable)
2. EPDS 160 (Y-004A) represents an emergency use only potable well – standby (non-potable)
3. EPDS 232 (W-001C) represents an active potable well (potable)

3.2 Blended Potable Water

Samples were collected at three CEPDS comprised of combined flow of groundwater wells. These four sampling sites represent the blended drinking water supply entering the distribution system at different locations.

4. CEPDS 124 (167R) represents the Southern Avra Valley Storage and Recovery Project (SAVSARP) wellfield (potable)
5. CEPDS 125 (310) represents the Santa Cruz wellfield (potable)
6. CEPDS 159 (EP1) represents the Central Avra Valley Storage and Recovery Project (CAVSARP) and SAVSARP wellfields (potable)
7. CEPDS 172 (199R) represents the Eisenhower Reservoir (potable)

3.3 Various Entry Points

Samples were collected at four EPDS and one reservoir. These five sampling sites represent the drinking water supply entering the distribution system at different locations.

8. EPDS 013 (A-055A) represents an out of service potable well – inactive (non-potable)
9. EPDS 054 (C-046B) represents an active potable well (potable)
10. EPDS 147 (B-110A) represents an active potable well (potable)
11. EPDS 245 (F-006A) represents an active potable well (potable)
12. Escalante Reservoir (EP21) represents an active potable reservoir (potable)

3.4 TARP/AOP Water

Samples were collected at two sites at the Tucson Airport Remediation Project/Advanced Oxidation Process (TARP/AOP) Water Treatment Plant. Tucson Water's TARP/AOP Water Treatment Plant uses state-of-the-art technology to effectively remove trichloroethylene (TCE), 1,4-Dioxane, and PFAS from water. The AOP water treatment facility operates in conjunction with the adjacent TARP facility to produce up to 7 million gallons of purified water a day. Though the AOP water is treated to drinking water quality standards, this water discharges into the Santa Cruz River and/or the reclaimed water system. These sampling sites represent groundwater before treatment prior to discharging and after treatment.

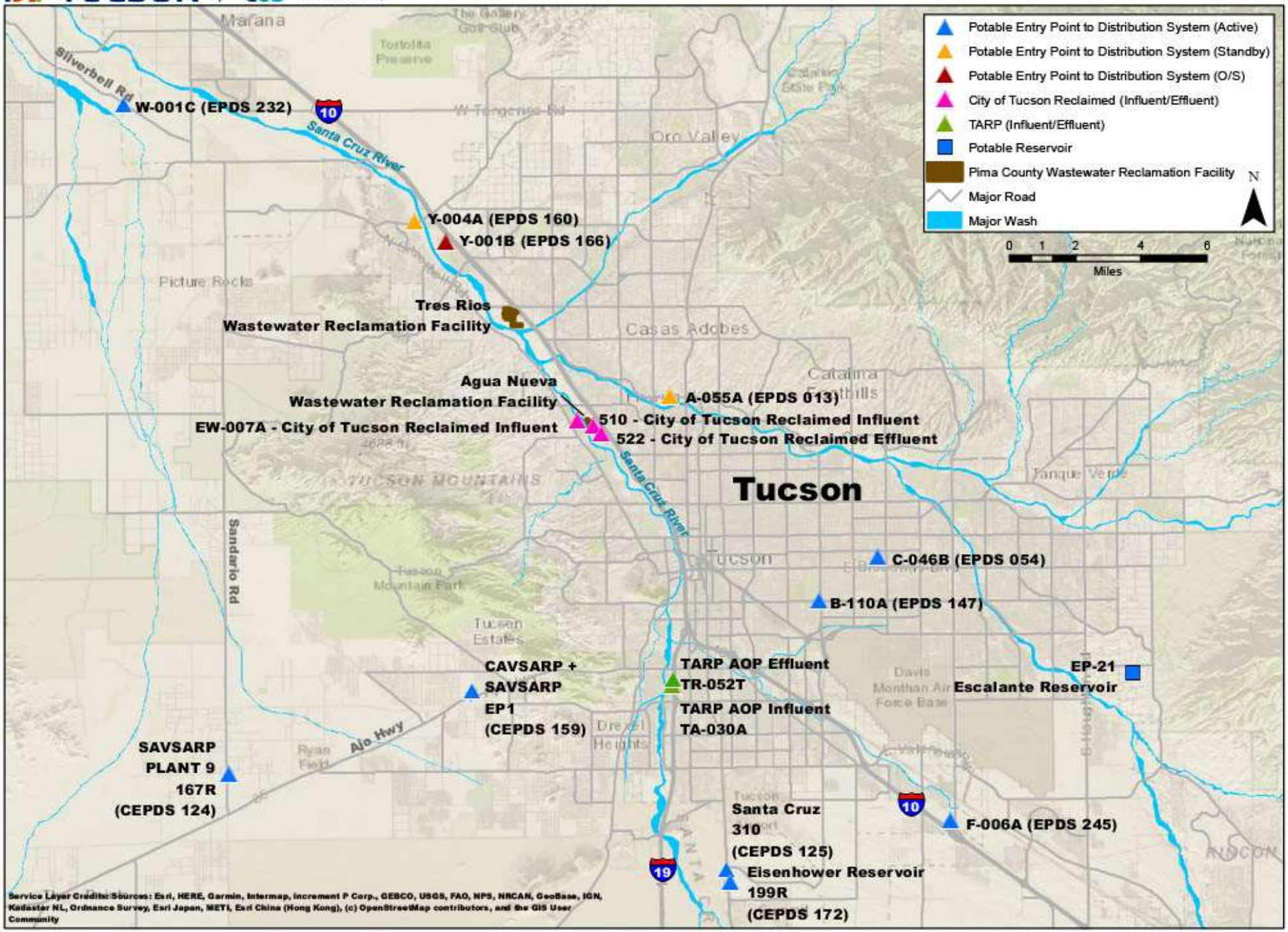
13. TA-030A (influent) represents untreated groundwater collected at the influent booster station (non-potable)
14. TR-052T (effluent) represents treated groundwater collected after TARP treatment (non-potable)

3.5 Reclaimed Water

These three sampling sites represent reclaimed water before and after treatment prior to entering the Sweetwater Wetlands and/or the reclaimed water distribution system.

15. 510 (influent) represents untreated reclaimed water (non-potable)
16. 522 (effluent) represents treated reclaimed water (non-potable)
17. EW-007A (influent) represents untreated groundwater from an extraction well (non-potable)

Figure 3. 2024 CEC Sentry Program Sampling Sites

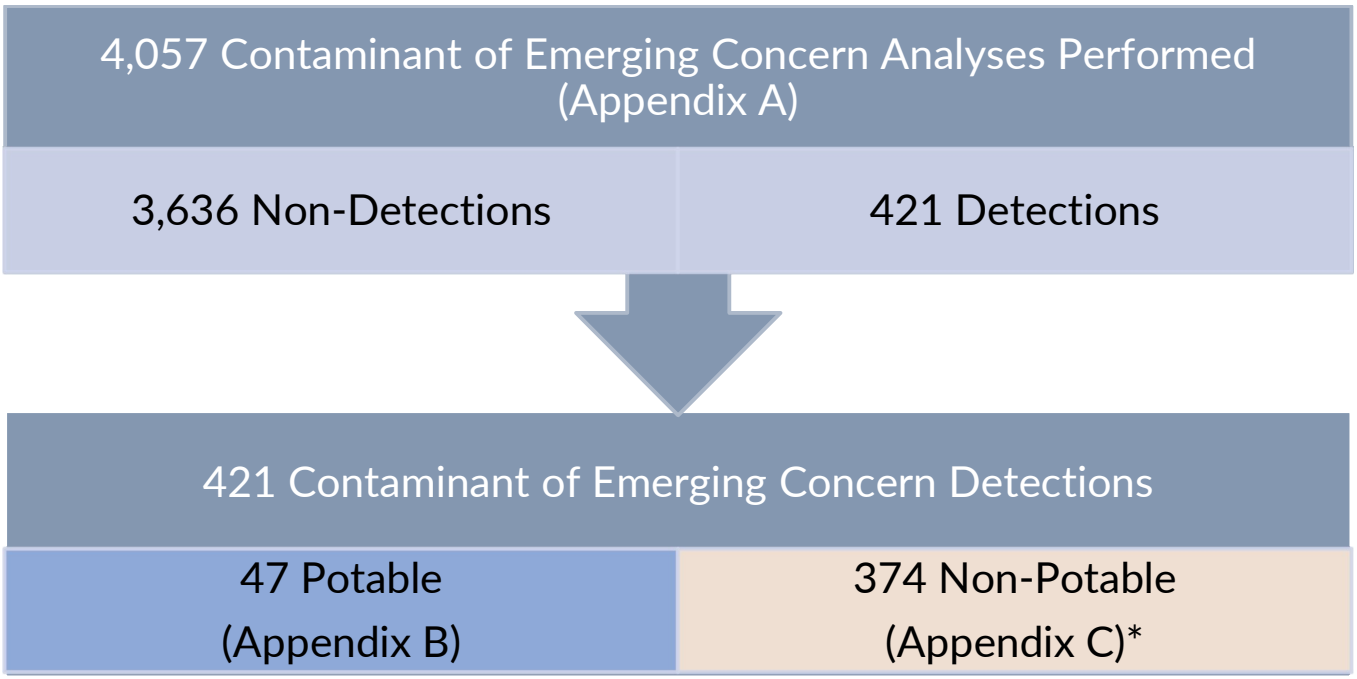


4.0 DETECTED CEC ANALYTES

In 2024, the 17 sampling sites included in the CEC Sentry Program were assessed twice, resulting in a total of 4,057 CEC assessments (**Figure 4**, **Appendix A**). Of the 131 analytes assessed, 55% (n=72) were detected. Of the parameters analyzed, 10.4% (number of samples [n]=421) had detectable concentrations of CECs. Notably, only 11.2% (n=47) of the detections occurred in potable water sources (**Appendix B**), while the vast majority (88.8 %, n=374) were found in non-potable water sources (**Appendix C**). Trace levels of CECs were identified in all 17 sample locations, and the number of CEC detections in the 2024 CEC Sentry Program remained generally consistent with historical data.

Figure 4. 2024 CEC Sentry Program Assessment Overview

Overview of assessments of contaminants of emerging concern (CECs) for the 2024 CEC Sentry Program Report.



*If it is determined that a sample has two or more of perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), perfluorobutane sulfonic acid (PFBS), or hexafluoropropylene oxide dimer acid (GenX Chemicals), the per- and polyfluoroalkyl substances (PFAS) Hazard Index (HI) was calculated. With the PFAS HI calculations, there were 385 non-potable sample detections.

Drinking Water Served (Potable)

All 2024 trace detections for potable water were considerably below any MCLs or HAs. There were no detectable levels of 1,4-Dioxane, atrazine, or any PFAS; however, simazine was detected twice at W-001C. The detected simazine concentrations were 2.5% (10 parts per trillion [ppt]) and 3.8% (15 ppt) of the simazine MCL of 400 ppt. This is considerably lower than the regulatory standard.

Potable detections are as follows (**Appendix B**):

- CEPDS 124 (167R) had 6 detections
- CEPDS 125 (310) had 3 detections

- CEPDS 159 (EP1) had 9 detections
- CEPDS (199R) had 7 detections
- EPDS 054 (C-046B) had 2 detections
- EPDS 147 (B-110A) had 1 detection
- EPDS 232 (W-001C) had 14 detections
- EPDS 245 (F-006A) had 2 detections
- Escalante Reservoir (EP21) had 3 detections

Water Not Served (Non-potable)

Non-potable water is not suitable for drinking but may still be used for other purposes. All 2024 trace detections for non-potable water were considerably below any MCLs or HAs with the following exceptions:

- 1,4-Dioxane - HA of 0.35 ppb for 1,4-Dioxane was exceeded at the following five sample locations: 510, 522, EW-007A, Y-001B, and Y-004A.
- PFOA –MCL of 4 ppt for PFOA was exceeded at the following six sample locations: 522, A-055A, EW-007A, TA-030A, Y-001B, and Y-004A.
- PFOS - MCL of 4 ppt for PFOS was exceeded at the following six sample locations: 522, A-055A, EW-007A, TA-030A, Y-001B, and Y-004A.
- PFHxS- MCL of 10 ppt for PFHxS was exceeded at the following five sample locations: 522, EW-007A, TA-030A, Y-001B, and Y-004A.
- HI- MCL of 1.0 for PFAS HI was exceeded at the following five sample locations: 522, EW-007A, TA-030A, Y-001B, and Y-004A.

Non-potable detections are as follows (**Appendix C**):

- EPDS 013 (A-055A) had 25 detections (emergency use only/standby)
- EPDS 160 (Y-004A) had 50 detections (emergency use only/standby)
- EPDS 166 (Y-001B) had 39 detections (inactive)
- Influent to TARP/AOP Plant TA-030A had 19 detections (untreated)
- Effluent of TARP/AOP Plant TR-052T had 7 detections (treated)
- 510 (influent) had 101 detections (untreated reclaimed water)
- 522 (effluent) had 87 detections (treated reclaimed water)
- EW-007A (influent) had 46 detections (untreated extraction well)

5.0 REGULATORY OUTLOOK

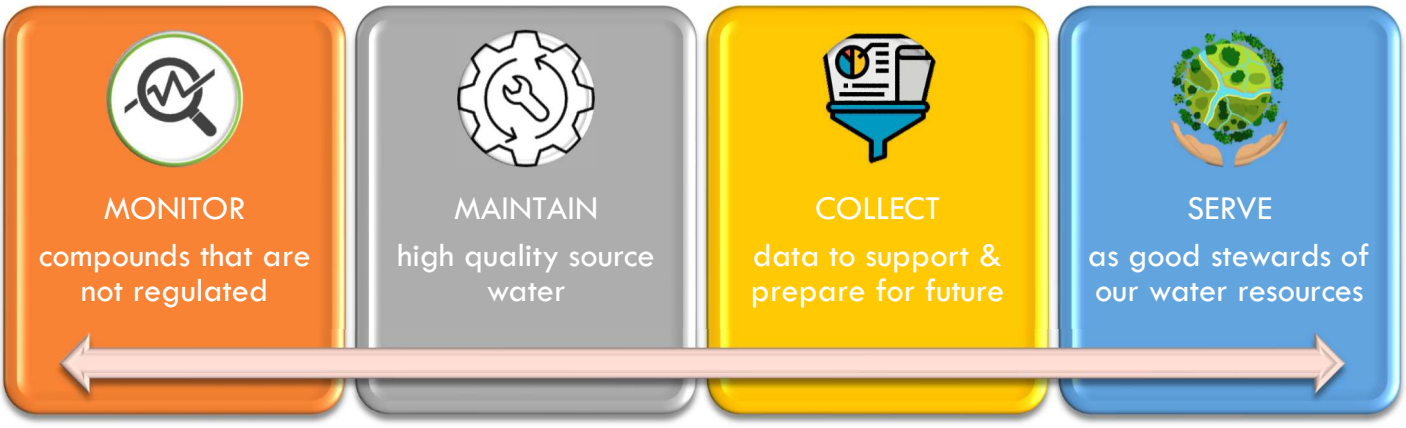
Tucson Water gives serious consideration to CEC detections. However, it is important to put CEC presence into context. EPA has not determined whether standards are necessary for many CECs. EPA uses the Unregulated Contaminant Monitoring Rule (UCMR) to collect data for contaminants that are suspected of being present in drinking water and do not have health-based standards set under the Safe Drinking Water Act.

The UCMR Program provides a basis for future EPA regulatory actions to protect public health. Depending on the outcome of EPA reviews, some of the CECs may or may not be considered for regulation in the future.

6.0 CONTINUED ACTION PLAN

Tucson Water will continue to enhance the CEC Sentry Program. The monitoring frequency of CECs will be maintained twice per year at selected potable and non-potable sampling locations. Tucson Water is actively engaged with local utilities and other key partners to investigate CECs and implements several discretionary monitoring programs. The voluntary monitoring programs are adaptable and allow Tucson Water to monitor and manage substances which may pose a risk to human health and/or the environment.

Although some CECs are currently not regulated drinking water contaminants, Tucson Water's monitoring programs are designed to be responsive to new scientific information and emerging challenges. Thus, Tucson Water's approach allows for the proactive management of CECs to mitigate exposure.



7.0 STEPS YOU CAN TAKE TO MAKE A DIFFERENCE

Visit https://www.tucsonaz.gov/es/household-hazardous-waste or call 520-791-3171.

Contact Us via email at QualityandPressure@tucsonaz.gov or phone at 520-791-5945.

APPENDIX A. Detects and Non-Detects - 2024 CEC Sentry Program

Detects and non-detects of contaminants of emerging concern (CECs) in the 2024 CEC Sentry Program Report.

Category	Non-Detect Analytes	#Assessments	Detected Analytes	#Detects	#Assessments
Food Additive			ACESULFAME-K	15	31
			SUCRALOSE	12	31
Industrial			1,4-DIOXANE	11	27
			1H-BENZOTRIAZOLE	15	31
			4-NONYL PHENOL	1	31
			4-TERT-OCTYLPHENOL	2	31
			BIS PHENOL A (BPA)	1	31
			CHROMIUM, HEXAVALENT	31	31
			QUINOLINE	1	31
			TCEP	4	31
			TCPP	4	31
			TDCPP	3	31
Personal Care Product	BUTYLPARABEN	31	ETHYLPARABEN	1	31
	ISOBUTYLPARABEN	31	PROPYLPARABEN	1	31
	METHYLPARABEN	31			
	OXYBENZONE	31			
	TRICLOCARBAN	31			
	TRICLOSAN	31			
Pesticide	2,4-D	31	ATRAZINE	7	31
	CHLORIDAZON	31	BROMACIL	1	31
	CHLOROTOLURON	31	DEA	7	31
	CLOFIBRIC ACID	31	DEET	4	31
	DACT	31	DIA	10	31
	ISOPROTURON	31	DIURON	8	31
	METAZACHLOR	31	LINURON	2	31
	METOLACHLOR	31	SIMAZINE	14	31
	PROPAZINE	31	THIABENDAZOLE	4	31
	SULFOMETURON METHYL	31			

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

Category	Non-Detect Analytes	#Assessments	Detected Analytes	#Detects	#Assessments
PFAS	11-CHLOROEICOSAFLUORO-3-OXAUNDECANE-1-SU	31	1H,1H, 2H, 2H-PERFLUOROOCTANE SULFONIC A	1	31
	1H,1H, 2H, 2H-PERFLUORODECANE SULFONIC A	31	PERFLUORO BUTANOIC ACID - PFBA	12	31
	1H,1H, 2H, 2H-PERFLUOROHEXANE SULFONIC A	31	PERFLUORO OCTANESULFONIC ACID - PFOS	12	31
	4,8-DIOXA-3H-PERFLUORONONANOIC ACID	31	PERFLUORO OCTANOIC ACID - PFOA	13	31
	9-CHLOROHEXADECAFLUORO-3-OXANONANE-1-SUL	31	PERFLUORO-1-BUTANESULFONIC ACID - PFBS	12	31
	HEXAFLUOROPROPYLENE OXIDE DIMER ACID	31	PERFLUORO-1-HEXANESULFONIC ACID - PFHxS	11	31
	NONAFLUORO-3,6-DIOXAHEPTANOIC ACID	31	PERFLUOROHEPTANESULFONIC ACID	1	31
	PERFLUORO(2-ETHOXYETHANE)SULFONIC ACID	31	PERFLUOROHEPTANOIC ACID - PFHpA	10	31
	PERFLUORO-3-METHOXYPROPANOIC ACID	31	PERFLUORO-N-HEXANOIC ACID	13	31
	PERFLUORO-4-METHOXYBUTANOIC ACID	31	PERFLUORO-N-NONANOIC ACID - PFNA	3	31
	PERFLUORODODECANOIC ACID	31	PERFLUOROPENTANESULFONIC ACID	5	31
	PERFLUORO-N-DECANOIC ACID	31	PERFLUOROPENTANOIC ACID	13	31
	PERFLUOROUNDECANOIC ACID	31			
Pharmaceutical	AMOXICILLIN (SEMI-QUANT.)	31	ACETAMINOPHEN	1	31
	ANDROSTENEDIONE	31	ALBUTEROL	3	31
	BENDROFLUMETHIAZIDE	31	ATENOLOL	4	31
	CARBADOX	31	BEZAFIBRATE	2	31
	CHLORAMPHENICOL	31	BUTALBITAL	3	31
	CIMETIDINE	31	CAFFEINE	7	31
	DIAZEPAM	31	CARBAMAZEPINE	10	31
	EPITESTOSTERONE	31	CARISOPRODOL	5	31
	ERYTHROMYCIN	31	CODEINE	3	31

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

Category	Non-Detect Analytes	#Assessments	Detected Analytes	#Detects	#Assessments
Pharmaceutical	ESTRADIOL	31	COTININE	2	31
	ESTRIOL	31	DEHYDRONIFEDIPINE	1	31
	ETHINYL ESTRADIOL-17 ALPHA	31	DICLOFENAC	4	31
	FLUMEQUINE	31	DILANTIN	5	31
	IBUPROFEN	31	DILTIAZEM	3	31
	IOPROMIDE	31	ESTRONE	1	31
	LINCOMYCIN	31	FLUOXETINE	4	31
	NORETHISTERONE	31	GEMFIBROZIL	4	31
	OXOLINIC ACID	31	HYDROCODONE	2	31
	PENTOXIFYLLINE	31	IOHEXOL	4	31
	PHENAZONE	31	KETOPROFEN	4	31
	PROGESTERONE	31	KETOROLAC	3	31
	SALICYLIC ACID	31	LIDOCAINE	5	31
	SULFACHLOROPYRIDAZINE	31	LOPRESSOR	4	31
	SULFADIMETHOXINE	31	MEPROBAMATE	5	31
	SULFAMERAZINE	31	METFORMIN	5	31
	SULFAMETHAZINE	31	METHADONE	4	31
	SULFAMETHIZOLE	31	NAPROXEN	2	31
	SULFATHIAZOLE	31	NIFEDIPINE	1	31
	TESTOSTERONE	31	PARAXANTHINE	8	31
	WARFARIN	31	PRIMIDONE	10	31
			PROPANOLOL	4	31
			SULFADIAZINE	4	31
			SULFAMETHOXAZOLE	8	31
			THEOBROMINE	3	31
			THEOPHYLLINE	10	31
			TRIMETHOPRIM	4	31
			VENLAFAXINE	4	31
	TOTALS	1,829		421	2,228

PFAS: Per- and polyfluoroalkyl substances

#: Number of

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

APPENDIX B. Detects in Potable System - 2024 CEC Sentry Program

Detections of contaminants of emerging concern in potable water systems in the 2024 CEC Sentry Program Report.

		# Detects	Concentrations Found			Potable Detect Locations								
		Sum	Average	Max	Units	W-001C	B-110A	167R	199R	310	EP1	C-046B	EP21	F-006A
Food Additive	ACESULFAME-K	6	0.05	0.09	ppb	2	0	2	0	0	2	0	0	0
	SUCRALOSE	4	0.12	0.13	ppb	0	0	1	0	0	2	0	1	0
Industrial	1H-BENZOTRIAZOLE	5	39.40	54.00	ppt	2	0	1	0	0	2	0	0	0
	CHROMIUM, HEXAVALENT[1]	17	0.69	6.50	ppb	2	1	2	2	2	2	2	2	2
Pesticide	DIA	2	11.00	13.00	ppt	2	0	0	0	0	0	0	0	0
	DEA	2	5.40	5.60	ppt	0	0	0	1	1	0	0	0	0
	SIMAZINE[2]	2	12.50	15.00	ppt	2	0	0	0	0	0	0	0	0
Pharmaceutical	PARAXANTHINE	1	.	0.05	ppb	1	0	0	0	0	0	0	0	0
	CAFFEINE	4	46.00	120.00	ppt	1	0	0	2	0	1	0	0	0
	THEOBROMINE	1	.	140.00	ppt	1	0	0	0	0	0	0	0	0
	THEOPHYLLINE	2	0.06	0.11	ppb	1	0	0	1	0	0	0	0	0
	LIDOCAINE	1	.	5.40	ppt	0	0	0	1	0	0	0	0	0
	TOTALS	47				14	1	6	7	3	9	2	3	2

Note: The average value was not calculated if the analyte was detected once. Blue indicates potable water.

[1] Though there is no federal maximum contaminant level (MCL) for hexavalent chromium (assessed in this report), there is an MCL for total chromium (100 ppb).

[2] Simazine was detected twice at W-001C. The detected simazine concentrations were 2.5% (10 ppt) and 3.8% (15 ppt) of the simazine MCL of 400 ppt.

ppb: Parts per billion

ppt: Parts per trillion

#: Number of

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

APPENDIX C. Detects in Non-Potable System - 2024 CEC Sentry Program

Detections of contaminants of emerging concern in non-potable water systems in the 2024 CEC Sentry Program Report.

		# Detects	Concentrations Found			Non-Potable Detect Locations							
		Sum	Average	Max	Units	510	522	EW-007A	Y-004A	A-055A	TA-030A	TR-052T	Y-001B
Food Additive	ACESULFAME-K	9	0.09	0.23	ppb	1	2	2	2	0	0	0	2
	SUCRALOSE	8	35.95	110.00	ppb	2	2	2	2	0	0	0	0
Industrial	**1,4-DIOXANE[1]**	**11**	**0.71**	**1.72**	**ppb**	**2**	**2**	**2**	**2**	**0**	**1**	**0**	**2**
	1H-BENZOTRIAZOLE	10	7,403.00	33,000.00	ppt	2	2	2	2	0	0	0	2
	4-NONYL PHENOL	1	.	670.00	ppt	1	0	0	0	0	0	0	0
	4-TERT-OCTYLPHENOL	2	0.08	0.11	ppb	1	1	0	0	0	0	0	0
	BIS PHENOL A (BPA)	1	.	53.00	ppt	1	0	0	0	0	0	0	0
	CHROMIUM, HEXAVALENT[2]	14	0.75	5.20	ppb	2	2	2	2	2	1	1	2
	QUINOLINE	1	.	46.00	ppt	1	0	0	0	0	0	0	0
	TCEP	4	0.10	0.16	ppb	2	2	0	0	0	0	0	0
	TCPP	4	1.00	1.60	ppb	2	2	0	0	0	0	0	0
	TDCPP	3	463.33	650.00	ppt	2	1	0	0	0	0	0	0
Personal Care Product	ETHYLPARABEN	1	.	22.00	ppt	0	0	0	1	0	0	0	0
	PROPYLPARABEN	1	.	6.10	ppt	0	0	0	1	0	0	0	0
Pesticide	ATRAZINE[3]	7	8.30	16.00	ppt	0	0	2	1	2	0	0	2
	BROMACIL	1	.	22.00	ppt	0	0	0	0	0	1	0	0
	DEA	5	13.94	26.00	ppt	0	0	0	1	2	1	0	1
	DEET	4	0.18	0.49	ppb	2	2	0	0	0	0	0	0
	DIA	8	25.38	95.00	ppt	0	0	2	2	2	1	0	1
	DIURON	8	26.64	67.00	ppt	2	2	2	2	0	0	0	0
	LINURON	2	7.80	7.90	ppt	2	0	0	0	0	0	0	0
	SIMAZINE[4]	12	23.28	78.00	ppt	2	2	2	2	2	0	0	2
	THIABENDAZOLE	4	29.25	51.00	ppt	2	2	0	0	0	0	0	0
PFAS	1H,1H, 2H, 2H-PERFLUOROOCTANE SULFONIC A	1	.	2.49	ppt	0	0	0	0	0	1	0	0
	PERFLUORO BUTANOIC ACID - PFBA	12	8.37	15.60	ppt	0	2	2	2	2	1	1	2

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

		# Detects	Concentrations Found			Non-Potable Detect Locations							
		Sum	Average	Max	Units	510	522	EW-007A	Y-004A	A-055A	TA-030A	TR-052T	Y-001B
PFAS	**PERFLUORO OCTANESULFONIC ACID – PFOS[5]**	**12**	**36.80**	**84.30**	**ppt**	**1**	**2**	**2**	**2**	**2**	**1**	**0**	**2**
	PERFLUORO OCTANOIC ACID – PFOA[6]	**13**	**10.99**	**20.30**	**ppt**	**2**	**2**	**2**	**2**	**2**	**1**	**0**	**2**
	PERFLUORO-1-BUTANESULFONIC ACID - PFBS	12	9.23	25.70	ppt	1	2	2	2	2	1	0	2
	PERFLUORO-1-HEXANESULFONIC ACID – PFHxS[7]	**11**	**32.46**	**135.00**	**ppt**	**0**	**2**	**2**	**2**	**2**	**1**	**0**	**2**
	PERFLUOROHEPTANESULFONIC ACID	1	.	2.64	ppt	0	0	0	0	0	1	0	0
	PERFLUOROHEPTANOIC ACID - PFHpA	10	4.61	6.61	ppt	0	1	2	2	2	1	0	2
	PERFLUORO-N-HEXANOIC ACID	13	12.54	23.90	ppt	2	2	2	2	1	1	1	2
	PERFLUORO-N-NONANOIC ACID – PFNA[8]	3	2.28	2.38	ppt	0	1	1	1	0	0	0	0
	PERFLUOROPENTANESULFONIC ACID	5	7.71	24.10	ppt	0	0	0	2	0	1	0	2
	PERFLUOROPENTANOIC ACID	13	16.52	43.20	ppt	1	2	2	2	2	1	1	2
	HAZARD INDEX[9]	**11**	**3.67**	**15.01**		**0**	**2**	**2**	**2**	**2**	**1**	**0**	**2**
Pharmaceutical	ACETAMINOPHEN	1	0.07	0.07	ppb	1	0	0	0	0	0	0	0
	ALBUTEROL	3	22.33	33.00	ppt	2	1	0	0	0	0	0	0
	ATENOLOL	4	0.23	0.37	ppb	2	2	0	0	0	0	0	0
	BEZAFIBRATE	2	0.02	0.02	ppb	2	0	0	0	0	0	0	0
	BUTALBITAL	3	19.33	28.00	ppt	1	2	0	0	0	0	0	0
	CAFFEINE	3	42.00	65.00	ppt	0	0	1	0	0	1	1	0
	CARBAMAZEPINE	10	0.21	0.32	ppb	2	2	2	2	0	0	0	2
	CARISOPRODOL	5	8.10	14.00	ppt	2	1	0	2	0	0	0	0
	CODEINE	3	62.33	110.00	ppt	2	1	0	0	0	0	0	0
	COTININE	2	0.02	0.03	ppb	2	0	0	0	0	0	0	0
	DEHYDRONIFEDIPINE	1	.	6.30	ppt	1	0	0	0	0	0	0	0
	DICLOFENAC	4	0.31	0.59	ppb	2	2	0	0	0	0	0	0
	DILANTIN	5	0.04	0.10	ppb	2	1	0	1	0	0	0	1
	DILTIAZEM	3	0.08	0.13	ppb	2	1	0	0	0	0	0	0
	ESTRONE	1	.	0.03	ppb	1	0	0	0	0	0	0	0
	FLUOXETINE	4	0.06	0.10	ppb	2	2	0	0	0	0	0	0
	GEMFIBROZIL	4	0.12	0.25	ppb	2	2	0	0	0	0	0	0
	HYDROCODONE	2	20.50	21.00	ppt	2	0	0	0	0	0	0	0

CONTAMINANTS OF EMERGING CONCERN SENTRY PROGRAM

		# Detects	Concentrations Found			Non-Potable Detect Locations							
		Sum	Average	Max	Units	510	522	EW-007A	Y-004A	A-055A	TA-030A	TR-052T	Y-001B
Pharmaceutical	IOHEXOL	4	44.50	83.00	ppb	2	2	0	0	0	0	0	0
	KETOPROFEN	4	20.83	40.00	ppt	2	2	0	0	0	0	0	0
	KETOROLAC	3	45.00	73.00	ppt	2	1	0	0	0	0	0	0
	LIDOCAINE	4	1,032.50	2,100.00	ppt	2	2	0	0	0	0	0	0
	LOPRESSOR	4	545.00	960.00	ppt	2	2	0	0	0	0	0	0
	MEPROBAMATE	5	0.04	0.07	ppb	2	2	0	1	0	0	0	0
	METFORMIN	5	569.80	1,100.00	ppt	2	2	1	0	0	0	0	0
	METHADONE	4	222.50	410.00	ppt	2	2	0	0	0	0	0	0
	NAPROXEN	2	0.11	0.19	ppb	1	1	0	0	0	0	0	0
	NIFEDIPINE	1	.	20.00	ppt	1	0	0	0	0	0	0	0
	PARAXANTHINE	7	0.04	0.09	ppb	2	2	1	0	0	1	1	0
	PRIMIDONE	10	0.14	0.33	ppb	2	2	2	2	0	0	0	2
	PROPANOLOL	4	95.00	210.00	ppt	2	2	0	0	0	0	0	0
	SULFADIAZINE	4	0.03	0.05	ppb	2	0	0	1	0	0	0	1
	SULFAMETHOXAZOLE	8	0.35	1.30	ppb	2	2	2	2	0	0	0	0
	THEOBROMINE	2	57.50	60.00	ppt	1	0	1	0	0	0	0	0
	THEOPHYLLINE	8	0.04	0.10	ppb	2	2	1	0	0	1	1	1
	TRIMETHOPRIM	4	0.13	0.27	ppb	2	2	0	0	0	0	0	0
	VENLAFAXINE	4	427.50	840.00	ppt	2	2	0	0	0	0	0	0
	TOTALS	385				101	89	48	52	27	20	7	41

Note: The average value was not calculated if the analyte was detected once. Column colors correspond to Figure 3 (2024 CEC Sentry Program Sampling Sites). Purple = reclaimed water, Yellow = standby potable wells (not in use), Green = TARP/AOP facility influent and effluent, Brown = out-of-service potable well. **Highlight and bold font indicates exceedance of a health advisory (HA) or maximum contaminant level (MCL). See Table 1 for more details on HA or MCL thresholds.**

[1] Of the 27 assessments, 1,4-Dioxane was detected 11 times at 6 non-potable sites. **The HA for 1,4-Dioxane is 0.35 ppb, and 9 assessments exceeded this threshold.** Specifically, exceedances occurred once at site 510 and twice at the following sites: 522, EW-007A, Y-001B, and Y-004A.

[2] Though there is no federal MCL for hexavalent chromium (assessed in this report), there is an MCL for total chromium (100 ppb).

[3] Of the 31 assessments, atrazine was detected 7 times in non-potable water, with no exceedance of the MCL of 300 ppt.

[4] Of the 31 assessments, simazine was detected 12 times in non-potable water, with no exceedance of the MCL of 400 ppt.

[5] Of the 31 assessments, PFOA was detected 13 times at 7 non-potable sites. **The MCL for PFOA is 4 ppt, and 11 assessments exceeded this threshold.** Specifically, exceedances occurred once at site TA-030A and twice at the following sites: 522, A-055A, EW-007A, Y-001B, and Y-004A (same sites as PFOS exceedances).

[6] Of the 31 assessments, PFOS was detected 12 times at 7 non-potable sites. **The MCL for PFOS is 4 ppt, and 11 assessments exceeded this threshold.** Specifically, exceedances occurred once at site TA-030A and twice at the following sites: 522, A-055A, EW-007A, Y-001B, and Y-004A (same sites as PFOA exceedances).

[7] Of the 31 assessments, PFHxS was detected 11 times at 6 non-potable sites. **The MCL for PFHxS is 10 ppt, and 7 assessments exceeded this threshold.** Specifically, exceedances occurred once at 522, EW-007A, and TA-030A, and twice at the following sites: Y-001B and Y-004A.

[8] Of the 31 assessments, PFNA was detected 3 times in non-potable water, with no exceedance of the MCL of 10 ppt.

[9] If it is determined that a sample has two or more of PFNA, PFHxS, PFBS, or hexafluoropropylene oxide dimer acid (GenX), the per- and polyfluoroalkyl substances (PFAS) Hazard Index (HI) was calculated. The PFAS HI was calculated by dividing the measured concentration of each compound by its respective reference level: PFHxS by 9 ppt, PFNA by 10 ppt, PFBS by 2000 ppt, and GenX by 10 ppt. The PFAS HI was calculated 11 times at 6 non-potable sites. **An MCL PFAS HI exceedance occurred if the sum of these ratios exceeded 1.0. In total, 7 PFAS HI calculations exceeded the MCL.** Specifically, exceedances occurred once at sites 522, EW-007A, and TA-030A and twice at the following sites: Y-001B and Y-004A.

PFAS: Per- and polyfluoroalkyl substances
ppt: parts per trillion
ppb: parts per billion
#: Number of