



Script 4 — Emerging Contaminants

Recording script. Target ~10–15 minutes at a normal reading pace. Headers, bracketed notes, and timing estimates are for your reference and are not read aloud.

1. The Moving Targets [~1 min]

The last script covered the settled end of the contaminant spectrum, where the numbers have held for years and are likely not changing. This script covers the opposite end. PFAS, chromium-6, and manganese are brand-new or still forming, with federal and California tracks that do not line up and dates that are still shifting.

2. PFAS [~5 min]

PFAS stands for per- and polyfluoroalkyl substances. PFAS are a family of thousands of human-made chemicals built around a very strong carbon-fluorine bond. That bond is why they do not break down in the environment, which is where the nickname "forever chemicals" comes from. They have been used for decades in things like nonstick coatings, food packaging, waterproof fabrics, and firefighting foam. In drinking water, the four primary sources of contamination are fire training and response sites, industrial sites, landfills, and wastewater treatment plants and their biosolids. PFAS health concerns include effects on the liver, the immune system, and the thyroid, along with cancer and developmental effects during pregnancy.

In April 2024, the U.S. EPA finalized its PFAS Primary Drinking Water Standards, the first federal drinking water standards for PFAS. There are six limits in all, five on individual PFAS and one on PFAS mixtures. The two best known, PFOA and PFOS, carry the strictest MCLs, at 4 parts per trillion each, with an MCLG of zero. The other three individual limits sit at 10 parts per trillion. A sixth limit is set for PFAS mixtures. A combined hazard index adds several PFAS compounds together relative to their safe levels, and if that total tops one, the mixture itself is a violation, even when no single chemical is over its own limit. It regulates the cocktail, not just the ingredient.

On timing, the federal rule gives systems until 2027 to finish initial monitoring, which consists of quarterly samples for larger systems and all surface water systems. It then gives systems until 2029 to meet the MCLs and requires a Tier 2 public notification if an MCL is exceeded.

In May 2026, the EPA proposed two changes to its own rule. The first would keep the PFOA and PFOS limits, but let eligible systems request two more years to comply, extending the deadline to 2031. The second would rescind the limits for the other PFAS and the hazard index entirely. As of this recording, both are only proposals, so the 2024 rule, and all six limits, still govern.

California is on its own track and has not yet adopted PFAS MCLs. In the meantime, it manages PFAS through monitoring orders and through advisory notification and response levels, which trigger

reporting and, at the higher response level, a recommendation to take a source out of service or treat it. The state's health agency is still developing the Public Health Goals that would eventually drive California's own MCLs. For now, the federal limits are the enforceable ones, and California's numbers are advisory.

For treatment, three technologies do the work: granular activated carbon, ion exchange, and reverse osmosis. All three pull PFAS out of the water rather than break it down, so the spent carbon, resin, or reject stream becomes a disposal problem of its own.

3. Chromium-6 [~3 min]

Chromium-6, also known as hexavalent chromium or the shortened chrome-6, is the standout case where California has an MCL and the federal government does not. The federal rule regulates only total chromium, which lumps the relatively benign trivalent chromium in with the far more toxic hexavalent form. Chrome-6 is a known carcinogen, found both naturally and from industrial discharges like metal plating.

California set its own chrome-6 MCL at 10 parts per billion. California also holds its total chromium MCL to 50 parts per billion, which is half the federal MCL.

Compliance dates for chrome-6 are phased by system size. Larger systems with 10,000 or more service connections must comply by October 1, 2026, while mid-size systems have until October 1, 2027, and the smallest systems until October 1, 2028. Systems began compliance monitoring in April 2025. If a system finds an exceedance before its compliance date, it has 90 days to submit a Hexavalent Chromium MCL Compliance Plan detailing how it will get into compliance.

Chrome-6 treatment options consist of ion exchange, reverse osmosis, or RCF which stands for reduction, coagulation and filtration. All three generate hazardous waste streams which require proper disposal.

4. Manganese [~2 min]

Manganese is the oddest of the three. Manganese is a naturally occurring metal, and at low levels it is mostly an aesthetic nuisance, staining plumbing fixtures and laundry, and giving the water a metallic taste. But new evidence is fueling growing concern of the health effects associated with manganese, especially the neurological effects it can have on formula-fed infants.

Federally, manganese is a secondary standard, meaning it's treated as an aesthetic issue, not a health-based one. In California, however, the state is moving to address manganese as a primary contaminant. In June 2026, the state revised its manganese Notification Level to 50 parts per billion, measured as a running annual average, and set a Response Level of 200 parts per billion on a single confirmed detection. Hitting the Notification Level means notifying your governing body within 30 days, while hitting the Response Level triggers an advisory about using the water for infant formula. California's health agency has been asked to develop a Public Health Goal, which is the usual first step toward an eventual state MCL.

While no BAT is explicitly given for Manganese, common treatment options include oxidation, usually with chlorine or potassium permanganate, followed by filtration, typically with greensand which is a glauconite-based filtration media.

5. Close [~1 min]

All three of these sit at the unsettled end of the MCLG-versus-MCL story: PFAS is a finalized federal rule now under proposed rollback, chrome-6 is California standing ahead of the federal government, and manganese is a secondary standard California is moving to treat as primary.