

Science is the organized art of asking good questions about how the world works — and then testing the answers.

First, clarify units: 87.7 $\mu\text{g/L}$ (written UG/L in your message) is 87.7 micrograms of benzene per liter of water. That unit is the standard for reporting drinking-water contamination.

How serious is 87.7 $\mu\text{g/L}$?

- It is substantially above common drinking-water safety benchmarks. For comparison:
- U.S. EPA maximum contaminant level (MCL) for benzene in drinking water = 5 $\mu\text{g/L}$.
- World Health Organization (WHO) guidance value = 10 $\mu\text{g/L}$.
- (Note: some states and countries use lower advisory levels or goals.)
- At 87.7 $\mu\text{g/L}$ you are at roughly 17 times the EPA MCL and nearly 9 times the WHO value. That is concerning for a drinking-water supply.

Health implications (brief):

- Benzene is a known human carcinogen (IARC Group 1). Long-term exposure is associated with increased risk of blood cancers (particularly leukemia) and can cause bone-marrow suppression (anemia, leukopenia, thrombocytopenia).
- Shorter-term, higher exposures can cause central nervous system effects (headache, dizziness, nausea) and irritation.
- The main health concern for water contamination is chronic ingestion over months to years. Acute symptoms would depend on how much contaminated water was consumed.

What you should do now

1. Stop using the water for drinking and cooking until you know more. Use bottled water or another safe source.
2. Do not boil the water to make it “safer” — boiling can volatilize benzene into indoor air and increase inhalation exposure.
3. Get a confirmatory test from a certified laboratory (especially if this is a private well). A single result can be a sampling or lab error; confirmation is important.
4. Notify local health or environmental authorities (local public health department or state water agency) — they can advise on testing, public notices, and remediation.
5. If the drinking-water exposure was prolonged or you have symptoms (fatigue, bruising, recurrent infections, dizziness), consult a physician — they may consider blood counts and exposure history.
6. Remediation/treatment options: Granular activated carbon (GAC) filtration and reverse osmosis are effective for removing benzene from water; air-stripping and certain treatment systems are also used. Address the contamination source (fuel leaks, industrial discharge) as a priority.

If you want, I can:

- Help you interpret a lab report (raw numbers and detection limits).
- Outline how to collect a confirmatory sample.
- Estimate a rough exposure dose given body weight and water consumption and discuss corresponding health risk estimates.