



**To: CAHAN San Diego Participants**

**Date: September 13, 2024**

**From: Public Health Services**

**Health Advisory: Cross-border pollution in the Tijuana River Valley and potential health effects**

#### Key Messages

- Higher than usual levels of hydrogen sulfide gas have been reported in the vicinity of Tijuana River Valley likely due to increased sewage flows in the Tijuana River and exacerbated during the recent heat wave.
- Hydrogen sulfide emits a strong, foul, “rotten egg” odor and some exposed persons may develop short-term symptoms such as headaches and irritation in the eyes, nose, throat, and lungs.
- Hydrogen cyanide gas has also been reported at very low levels and detection of hydrogen cyanide may be the result of hydrogen sulfide cross sensitivity when using certain types of sensors.
- Use of air purifiers and odor controlling filters in air conditioning/HVAC systems may provide relief and conducting outdoor activities indoors when odors are particularly bothersome.
- Healthcare providers are encouraged to share:
  - The [South Region Illness Concerns webpage](#) with the patients where information on sewage safety and dealing with odors are available.
  - The San Diego Air Pollution Control District (APCD) [complaint map](#), so sensitive patients can avoid areas with a high volume of odor complaints.

#### Situation

On September 9<sup>th</sup>, 2024, hydrogen sulfide was detected in the South region of San Diego County in the Tijuana River Valley at up to 0.5 parts per million (ppm) at Hollister Street bridge and 0 to 16 ppm at Saturn Blvd and at non-detectable levels at both Godfrey Berry Elementary and Southwest High School sites. The hydrogen sulfide gas is the direct result of increased amounts of untreated raw sewage in the Tijuana River. At these levels, hydrogen sulfide may induce tearing of the eyes and symptoms related to overstimulation of the sense of smell, including headache, nausea, or vomiting. Hydrogen cyanide was also reported at 0-2.5 ppm at Hollister Street bridge, 0-25ppm at Saturn Blvd, and non-detectable at both school sites.

#### Background

Cross border sewage is impacting the Tijuana River Valley and surrounding areas. Local, state, and federal agencies are working towards infrastructure repairs to address the crisis. However, the Tijuana River continues to be contaminated with sewage. The sewage had resulted in closure of [beaches in the South County region](#), but it also is the source of odors. The [Air Pollution Control District \(APCD\)](#) is responsible for monitoring air quality in San Diego County. APCD has been investigating complaints of foul odor and conducting additional testing alongside researchers. Recently, levels of hydrogen sulfide have been elevated, possibly related to the recent high temperatures in the County. While reports of hydrogen cyanide were also made, the readings may be caused by the higher hydrogen sulfide levels and cross-sensitivity of the instruments gave a false positive reading.

Hydrogen sulfide (H<sub>2</sub>S) is a colorless gas that smells like rotten eggs. The human nose can detect it at levels as low as 0.0005 part per million or ppm. The lower detection limit of typical equipment used to monitor hydrogen sulfide is 1 ppm. Odors can be quite strong, even at very low levels, and may induce temporary symptoms. These symptoms typically resolve when the odor subsides or when the person is in an area where the odors are not present. The symptoms reported have largely ranged from mild to moderate, regardless of the strength of the foul odors detected. As odors have been noted to be fluctuating and intermittently present in the affected areas, some people may have fluctuating symptoms, while patients with continuous exposure to odors may present with persistent symptoms. Symptoms may be worse in people with pre-existing health conditions, such as lung or heart conditions. People are being advised to seek medical attention for persistent, worrisome, or worsening symptoms and to take additional steps to mitigate their symptoms.

**Mild symptoms** associated with hydrogen sulfide exposure include headache; ocular and sinopulmonary irritation (e.g., burning/tearing of eyes, cough, shortness of breath); and nausea/abdominal discomfort. **Moderate symptoms** are malaise, dizziness, vomiting, and/or dyspnea. Mild and moderate symptoms are usually transient and reversible with removal from the exposure and reflect the characteristics of physiological responses to the odor. It should be noted that considerable variation in symptom severity may be seen among members of the same household.

In addition to immediate efforts with state and federal governmental and research partners and more intensive air monitoring, there will be a [CDC-led investigation](#) related to the crisis to assess household-level impacts in the South region of San Diego County in 2024 related to sewage exposure from the Tijuana River Valley, including air and water exposures through a survey. The survey will involve several hundred households, and the County is working with the CDC on when the interviews will begin.

### ***Diagnosis and Treatment***

Physiological response to hydrogen sulfide should be suspected in patients with a history of exposure to odors in surrounding areas who have physical symptoms consistent with a hydrogen sulfide exposure. Providers should use clinical judgement to guide the symptomatic relief based on the patient's complaints, physical exam findings, and underlying health conditions. Medical testing for hydrogen sulfide is not routinely available and does not predict the health effects that may develop after exposure. Mild to moderate symptoms generally resolve with separation from the odors and symptomatic treatment.

### **Actions Requested**

1. **Recommend** that patients experiencing the odors take measures to reduce their exposure to the odors, such as:
  - a. Keeping doors and windows closed as much as possible when the odors are present outside.
  - b. When odors are not present outside, open windows to air out the building.
  - c. Changing the air filters on their central HVAC system to ones that are HEPA or MERV-rated filter with activated carbon (charcoal) to improve indoor air quality and odors.
  - d. Using a certified portable HEPA indoor air filter with activated charcoal to improve indoor air quality and odors.
  - e. Temporarily leaving the area where odors are present to alleviate persistent, worrisome, or worsening symptoms.
2. **Advise** patients that might be sensitive to odors to check the San Diego Air Pollution Control District (APCD) [complaint map](#) to avoid areas with a high volume of odor complaints.

3. **Provide** additional information on sewage safety and odors available on the County [South Region Health Concerns](#).

## Resources

- [Hydrogen Sulfide | Public Health Statement | ATSDR \(cdc.gov\)](#)
- [Hydrogen Sulfide Carbonyl Sulfide | Toxicological Profile | ATSDR \(cdc.gov\)](#)
- [Hydrogen Sulfide & Health | California Air Resources Board](#)
- [South Region Illness Concerns webpage](#)
- [SDAPCD Complaint Dashboard \(sandiegocounty.gov\)](#)
- [Beach and Bay Program \(sandiegocounty.gov\)](#)
- [County of San Diego Beach Water Quality \(sdbeachinfo.com\)](#)

Thank you for your participation.

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