

REVIEWER'S REPORT

Manuscript No.: IJAR-53182

Date: 9 August 2025

Title: CONTROL OF FOUL-SMELLING WATER: CAUSES, IMPACTS, AND COMPREHENSIVE REMEDIATION STRATEGIES

Recommendation:

Accept as it is

Accept after minor revision.....

Accept after major revision√.....

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		√		
Techn. Quality			√	
Clarity			√	
Significance		√		

Reviewer Name: Dr Ahmed M. Saqr

Date: 9 August 2025

Reviewer's Comment for Publication.

(To be published with the manuscript in the journal)

The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.

This manuscript addresses a timely and practically important problem—odorous drinking and groundwater—by synthesizing causes, health/environmental implications, and remediation options across chemistry, microbiology, and engineering. Its cross-scale perspective (household to municipal) and comparative treatment discussion (oxidation, aeration, filtration) offer actionable guidance for practitioners. The inclusion of case studies and emerging technologies highlights translational relevance and future directions. With strengthened methodological transparency and sourcing, the work can serve as a valuable reference for evidence-based odor

Detailed Reviewer's Report

Thank you for the opportunity to review the manuscript titled “CONTROL OF FOUL-SMELLING WATER: CAUSES, IMPACTS, AND COMPREHENSIVE REMEDIATION STRATEGIES,” submitted to the International Journal of Advanced Research (Int. J. Adv. Res. 13(07), July-2025, 07-13). Overall impression: the topic is timely and relevant, the

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manuscript is generally well-structured, and it attempts a broad synthesis across chemistry, microbiology, engineering, and practice. However, there are substantive issues in clarity, methodological rigor, sourcing, figures/tables, consistency, and presentation that need to be addressed before the paper can be considered for publication. Decision: Major Revision.

*Major comments**Abstract*

Can you provide specific quantitative findings in the Abstract (e.g., ranges of H₂S concentrations addressed, numerical removal efficiencies, sample sizes for the meta-analysis) and clearly state the main numerical outcomes and uncertainties rather than general statements?

Please clarify the study design in the Abstract: specify that this is a systematic review and meta-analysis (if applicable), the time window (2000–2025), databases searched, approximate number of included studies, and principal evaluation metrics (e.g., median removal efficiencies, cost per 1,000 gallons).

The Abstract mentions “Results provide data on odor prevalence and treatment effectiveness.” Can you include at least two concrete statistics with citations that are actually substantiated in the Results?

Introduction

There are minor factual/formatting issues (e.g., “” truncated “Minnesota Department of ...” later; repeated municipal FAQ-type sources) and some sentences appear incomplete (e.g., lines 11–16 include a broken sentence “to provide actionable guidance for stakeholders”). Please revise for grammatical completeness and coherence, and ensure each claim is supported by peer-reviewed or authoritative references.

Can you refine the problem statement and knowledge gap? What specifically is missing in prior reviews (e.g., integrated cost-effectiveness comparisons

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across oxidation/aeration/filtration; household versus municipal scalability; climate-impacted odor dynamics) that your review aims to address?

Materials and Methods

The Methods describe a “systematic review” and “meta-analysis,” but the reporting is incomplete. Can you detail the search strategy (databases, full Boolean strings, dates), inclusion/exclusion criteria, screening process (PRISMA flow diagram), data extraction protocol, study quality/risk-of-bias assessment tool(s), and statistical methods (model type, heterogeneity statistics, handling of unit conversions)?

The mixture of peer-reviewed papers, agency reports, vendor pages, and community forums (e.g., Reddit) introduces heterogeneity and potential bias. Please justify inclusion of non-peer-reviewed sources, detail how they were weighted or separated in analysis, and provide a sensitivity analysis excluding gray/non-scholarly sources.

If you performed quantitative synthesis, specify how you harmonized outcome measures (e.g., H₂S removal efficiency, initial concentration ranges, contact times), how you handled differing water matrices (groundwater vs. wastewater), and provide confidence intervals and heterogeneity (I²) for pooled estimates.

Results

The claim that “H₂S is the primary etiology in approximately 70% of odor incidents ” needs clearer derivation: What is the denominator, which study types and settings were included, and how were incident types categorized? Please present a table summarizing the studies contributing to this estimate and provide uncertainty bounds.

Several numerical statements (e.g., irritation threshold at 10 mg/L H₂S) need careful verification and precise units. Are these water concentrations or air exposure thresholds? Please disambiguate, standardize units, and ensure consistency with authoritative health guidance.

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Provide full, reproducible quantitative summaries: stratify treatment efficacy by initial H₂S concentration bands, water type (well, municipal, wastewater), system scale (household vs. plant), and technology configuration; include effect sizes with 95% CIs and heterogeneity metrics.

Figures and Tables

Figure 1: The caption references and a field-scale digester context (wastewater/biogas), while the manuscript focuses on water supplies. Please clarify the matrix (wastewater vs. drinking water) and justify the applicability. Include axes labels with units, sample sizes, error bars, and statistical annotations. Ensure the data correspond exactly to the cited study and are not repurposed beyond scope.

Table 1: Provide explicit, citable quantitative ranges for “Cost” and “Effectiveness,” define cost assumptions (CAPEX/OPEX, energy, media life, chemical prices, flow basis), and standardize terminology. Replace qualitative “Low/Medium/High” with actual figures where possible and include references for each value.

Figure 2: You provide a “To replicate in Word” instruction, but not the underlying data sources. Please cite the primary sources for each cost and efficiency point, provide uncertainty ranges, and state all assumptions. Otherwise, this may be perceived as constructed rather than evidence-based.

Discussion

The Discussion should better integrate quantitative synthesis with practical guidance. Can you explicitly discuss trade-offs (e.g., chlorination byproducts vs. ozone cost; aeration effectiveness vs. headspace H₂S off-gassing controls), and provide decision frameworks tied to measured initial conditions (e.g., initial H₂S >/< 2 mg/L, presence of iron/manganese, pH, temperature)?

Some statements generalize efficacy (e.g., “greensand filtration 90% for higher levels”) without stratification by influent quality, oxidant dosing,

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contact time, or regeneration cycles. Please contextualize efficacy with operational parameters and maintenance implications.

Expand on climate impacts with evidence: how do temperature stratification, nutrient loading, and cyanobacterial dynamics statistically affect odor episodes, and what adaptive management strategies are supported by data?

Health and Environmental Impacts

Please distinguish clearly between sensory thresholds, drinking-water guideline values, and occupational/ambient air exposure limits for H₂S, and ensure all units and contexts are correct and consistent. Add authoritative references for each threshold and consider a concise table comparing them.

When mentioning cyanotoxins coinciding with odor events, specify which toxins, typical co-occurrence rates, and recommended monitoring actions, supported by peer-reviewed studies.

References

The reference list contains a high proportion of municipal FAQs, vendor blogs, and community forums. Please prioritize peer-reviewed, governmental, or standards-based sources for core claims, and move non-scholarly sources to a supplemental section if retained for practical context.

Ensure consistency and completeness: fix duplicates/near-duplicates (e.g., Apopka and Rosemount appear twice as items 4/92 and 5/93), correct truncated entries (e.g., “.”), unify citation styles (journal names, DOIs), and verify that every in-text numerical claim is traceable to a high-quality source.

Conclusion and Practical Guidance

The Conclusion should present specific, evidence-based recommendations stratified by scenario (household wells, small community systems, municipal plants) and initial conditions (e.g., H₂S level tiers). Consider adding an actionable decision tree or summary table linking diagnostics to treatment pathways with cited performance and costs.

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Please explicitly state limitations (heterogeneity of sources, reliance on gray literature, limited data for certain technologies) and identify research priorities (standardized reporting of odor events, controlled comparative trials, long-term performance and byproduct monitoring).

Minor comments (with section references)

Title: Consider shortening and aligning with the study type, e.g., “Foul-Smelling Water: Causes, Impacts, and Remediation—A Systematic Review (2000–2025).”

Manuscript History: Replace placeholders (“Final Accepted: xx xxxx xxxx; Published: xxxx xxxx”) with the journal’s standard “In Review” format or remove until appropriate.

Introduction: Correct grammatical issues and fragmented sentences in lines 11–16; ensure all abbreviations (e.g., MIB) are defined at first use.

Causes: Fix the truncated citation “(Minnesota Department of.)” and ensure consistent unit formatting for temperature (°C/°F) and concentrations (mg/L vs. µg/L).

Materials and Methods: Add a PRISMA-style flow diagram and a table listing included studies with key variables (matrix, initial H₂S, technology, scale).

Results: Where you report “seasonal peaks,” add a figure or table showing seasonal distributions with references; otherwise soften the claim.

Figures: Ensure high-resolution, publication-quality graphics with readable fonts, consistent styles, and self-contained captions (define all acronyms, units, and data sources).

Formatting/References: Unify reference style (author initials, journal names italicization, DOI formatting), remove duplicates, and correct inconsistent capitalization in web sources’ titles.