01

Recommendation & SWOT Form

RECOMMENDATION SUMMARY

Reduce Daily Flow Rates: Reduce the minimum absorption area design flow for individual wastewater systems from 200 gallons per day to 150 gpd/bedroom, This reflects that the current design flow requirements predate modern low-flow fixtures and water conservation practices. Remove the five bedroom maximum, instead relying on the existing 1,000 gpd maximum daily flow.

INTERNAL FACTORS

STRENGTHS +

- Updates an outdated standard to reflect real usage
- Reduces system footprint and construction costs.
- Aligns Hawaii with most U.S. States
- Oversized systems negatively impact the effectiveness of natural, biological treatment processes
- 1,000 gpd maximum retains simplicity and remains valid no matter how the flow rate is calculated.

WEAKNESSES –

- Reduced redundancy for high-occupancy or multi-generational households.
    - Even with reduced estimated flow rates, there is already redundancy to cover these outliers.
    - See Additional Information (Bullet 2)
- Less conservative buffer for future household growth.

EXTERNAL FACTORS

OPPORTUNITIES +

- Reduces construction costs significantly.
- Accelerates the path toward the 3,000 cesspools/year target.
- Makes cesspool conversion feasible for homeowners with small lots who currently cannot meet leachfield sizing requirements.
- Supports landowners with limited financial and spatial resources

THREATS –

- A small percentage of households may have genuinely higher water use.
- Without monitoring, undersized systems could fail in high-occupancy situations.

ADDITIONAL INFORMATION

- Hawai'i's 200 gpd/bedroom rate is tied for the second highest in the country. Alternative models from other states:
    - Washington State uses a 120 gpd/bedroom flat rate;
    - New Mexico scales from 150 gpd for a 1-bedroom to ~50 gpd per additional bedroom.
    - Vermont assumes 2 people per bedroom for the first 3 bedrooms, then 1 person per bedroom after that, at 70 gpd/person.
- Hawaii adopted IAPMO's Water Demand Calculator (WDC), published as UPC Appendix M, into the Hawaii Plumbing Code 2021 (Hawaii Plumbing Code §M 102.2). Hawaii was among the first ten states nationally to adopt Appendix M, joining Nevada, North Dakota, Oregon, Montana, New Mexico, New Jersey, Washington, Wisconsin, and California.
- The WDC replaced Hunter's Curve, a pipe-sizing methodology developed in 1940, with a statistically rigorous binomial probability model built on measured fixture-use data from over 1,000 single-family homes. Its adoption represents Hawaii's regulatory acceptance that legacy demand estimation methods, developed before modern low-flow fixtures, systematically oversize water systems relative to actual use.
- Relevant code sections:
    - 200 gpd/br: HAR 11-62-34(a)(2)(A), HAR 11-62-34(c)(2)(A), HAR 11-62-34(d)(2)(B)
    - Maximum daily flow rate: HAR 11-62-31.1(a)(1)(D), HAR 11-62-33.1(a)(5)

*Once completed, please email this form to **doh.wwb.cesspool@doh.hawaii.gov**.*

Recommendation & SWOT Form 02

RECOMMENDATION SUMMARY

Pathways for Adopting Innovative Technologies: Establish a clear, codified pathway in HAR 11-62 for testing, piloting, and approving innovative wastewater system technologies. Currently, no transparent process exists, causing technology companies to abandon efforts to enter the Hawai'i market and limiting the range of affordable solutions available to homeowners and communities. For example, Vermont utilizes "General Use Approval," "Experimental Approval," and "Pilot Approval" with defined timelines and criteria that can operate within the variance framework used in Hawai'i (see bullet point 1 in Additional Information). DOH will publish and maintain a list of technologies that have been approved for general, experimental, or pilot use.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
• Accelerates adoption of more effective, affordable treatment solutions. • Creates regulatory certainty that attracts investment from technology companies.	• DOH capacity constraints may slow down technology evaluations without adequate staffing or use of technical advisory groups, there is risk of creating a backlog. • Experimental systems require careful monitoring protocols.

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
• Attracts water and wastewater technology companies to establish a presence in Hawaii. • Enables WRRC and UH to serve as local testing sites, generating locally-derived data that could be used to accelerate progress and inform decision-making. • Opens pathways for community-scale, modular, and nature-based systems suited to rural island communities • Public list for approved technologies provides a central location for engineers to identify treatment solutions and facilitates adoption of new technologies.	• Risk of approving technologies that are ill-suited for Hawaii's unique environmental and geological conditions. • Without robust RME structures in place, innovative systems can become difficult to enforce.

ADDITIONAL INFORMATION

- Models like Vermont's tiered pilot permit system (Vermont's Wastewater System Rules (Subchapter 4)) demonstrate the feasibility of a codified pathway with three tiers: general use, experimental, and pilot permits.
- New Mexico's performance-based standards allow alternative permits tied to secondary, tertiary, and disinfection treatment benchmarks.

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Recommendation & SWOT Form 03

RECOMMENDATION SUMMARY

Disposal System Size Reductions Based on Treatment Quality: Establish standardized absorption bed size reductions tied to demonstrated effluent treatment quality (also need to define absorption beds in definitions):

- 33% reduction where the treatment system achieves NSF40 or equivalent guidelines (30 day average BOD5 ≤ 25 mg/L, TSS ≤ 30 mg/L)
- 50% where the system achieves NSF245 or equivalent guidelines (30-day average BOD5 ≤ 25 mg/L, TSS ≤ 30 mg/L, TKN removal ≥ 50%) with soil percolation faster than 30 min/in. A groundwater mounding analysis shall be completed by a professional engineer using the Darcy Equation where a 50% reduction is applied in a smaller footprint to ensure the concentrated hydraulic load doesn't induce groundwater rise.

Qualification for these reductions may be demonstrated via either:

1. NSF/ANSI 40 certification (33% reduction) or NSF/ANSI 245 certification (50% reduction) as a fast-path presumption of compliance; or
2. Annual inspections and field monitoring data or third-party laboratory testing demonstrating equivalent effluent quality as approved by the Director.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
• Codifies existing DOH variance practice into predictable standards. • Reduces project cost significantly • Opens the path to non-NSF systems, broadening the range of affordable and ecologically appropriate solutions for rural Hawaiian communities	• The standard reduction may not apply in soils with low percolation rates, limiting applicability in some areas.

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –

• Expands the number of properties that are able to complete cesspool conversions by establishing a predictable treatment standard to reduce required land area. • Creates incentives for higher treatment by lowering total project costs. • Higher-treated effluent is better suited for vegetative uptake and soil enhancement in the dispersal zone, leading to better ecological outcomes.	• Absorption trench or bed may underperform if the treatment unit fails or is not properly maintained.

ADDITIONAL INFORMATION

- Washington State allows 50% reduction for NSF40. Florida allows 40%. Pennsylvania allows 33%. None require NSF certification specifically, only that the system meets state-defined performance standards.
- DOH has already issued informal variances of up to 40% for NSF245. Codifying this practice reduces costs and eliminates the need for case-by-case variance applications for each conversion project, which can add administrative strain.
- Performance thresholds for treatment works are defined in existing HAR 11-62-26 effluent monitoring requirements. Aligning IWS design standards with established parameters creates regulatory consistency.

Once completed, please email this form to doh.wwb.cesspool@doh.hawaii.gov.

Recommendation & SWOT Form

04

RECOMMENDATION SUMMARY

Retrofitting Cesspools into Seepage Pits: Revise the seepage pit section under HAR 11-62-34(d) to authorize the use of structurally sound, existing cesspool excavations as the dispersal structures for a seepage pit individual wastewater system, where an upstream treatment system produces effluent meeting advanced secondary effluent quality (BOD5 ≤ 10 mg/L, TSS ≤ 10 mg/L, NSF/ANSI 245 or demonstrated equivalent).

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
• Dramatic cost reduction by eliminating excavation, lining, and ring installation costs on lava, rocky, or space-constrained lots. • The requirement for advanced secondary effluent establishes a higher standard than applied to conventional seepage pits receiving primary effluent, justifying a basis for less stringent lining requirements. • Performance-based eligibility ensures any technology that achieves the required treatment level qualifies, including nature-based solutions.	• Applicable primarily to properties where existing cesspool infrastructure is structurally sound, which requires professional engineering certification of structural integrity. Excludes collapsed or compromised structures. • Advanced secondary treatment maintenance contracts add an ongoing cost

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
• Opens cesspool conversion for a large number of properties where installing a conventional seepage pit is physically impossible, like Hawaii Island communities on lava fields. • Allows engineers greater design flexibility. • Advances the conversion mandate by making the most difficult to convert properties feasible.	• The advanced treatment unit will need to be under a Department-approved operation and maintenance contract and a responsible management entity may need to be put in place or in order to reduce risk of operational failure leading to primary effluent discharging to a pit with less robust lining. • Allowing for cesspool excavations and subsequent use without a concrete lining must be framed to ensure that this standard only applies to advanced

	secondary treated effluent, not for all new seepage pit construction.

ADDITIONAL INFORMATION

1. Current HAR 11-62-34(d)(3)(A) requires seepage pits to have 'a sidewall lining constructed of durable material that will permit free passage of wastewater without excessive plugging while still excluding the entry of surrounding soil.' HAR 11-62-34(d)(3)(B) requires a cover extending at least 12 inches beyond the excavation, unless a concrete ring is used. These requirements reflect a conventional seepage pit construction context.
2. An existing cesspool excavation is already an in-ground structure with established walls; the structural integrity concern that requires a lining is addressed through the engineer's structural certification. The Sato Pit Liner is an example of an alternative, modular liner approach that retains structural integrity and can be fit into excavated cesspools that vary in dimensions.
3. This rule change may also require a decrease in accepted percolation rate from 10 min/in to 30 or 60 min/in to reflect the reduced BOD in secondary treated effluent which should contribute to significantly slower biomat growth than primary treated effluent. Many of the systems that could take advantage of this model would likely be on low permeability lava-derived soils, so allowing for slower percolation rates may be necessary and hydraulically defensible.

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Recommendation & SWOT Form

05

RECOMMENDATION SUMMARY

Create new pathways for decentralized cluster systems: Create a new subchapter within HAR 11-62 establishing clear, standardized pathways for permitting decentralized cluster and community-scale wastewater systems serving systems serving two or more residences with design flows greater than 1,000 gpd and not exceeding 100,000 gpd.

This would enable groups of rural properties to share a single advanced treatment system rather than each bearing the full cost and space requirements of individual conversions, while opening up possibilities for effluent reuse for irrigation of firebreaks, greenbelts, and restoration plantings wherever feasible. Also creates a structure that would allow for the development of responsible management entities (RME) or sewer improvement districts (SID) that are able to manage and maintain localized systems.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
• Reduces per-household conversion cost. • Enables cesspool conversion where individual lot size or geology make IWS infeasible. • Treated water can be redirected for community benefit: fire suppression, water storage, native plant restoration, agroforestry.	• Requires coordination among multiple landowners, which can be complex. • Needs a clearly defined Sewer Improvement District; Responsible Management Entity; or community nonprofit structure to manage operations and maintenance. • Regulatory framework for shared systems is currently absent from HAR 11-62, making this a larger scale revision.

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
• Creates pathways for community-led water and wastewater management consistent with traditional Hawaiian approaches to collective land and resource stewardship. • Treated effluent directed to firebreaks and native vegetation corridors could serve watershed restoration and wildfire resilience simultaneously.	• Liability allocation between co-owners and the management entity can be legally complex. • The system must be able to adapt to changing community needs. • Long-term sustainability of community Sewer Improvement District or Responsible Management Entity structures requires dedicated funding mechanisms.

• Supports Department of Hawaiian Homelands communities and rural subdivisions where individual conversions are difficult or expensive.	

ADDITIONAL INFORMATION

- Design flow tiers:
  - Below 1,000 gpd: existing IWS framework applies
  - Between 1,001-100,000 gpd: new decentralized cluster system category
  - Above 100,000 gpd: existing treatment works framework applies
- Texas TCEQ Chapter 217 provides a model for decentralized cluster system requirements.
- EPA's Five Management Models for decentralized wastewater management provide a tiered framework that can be mapped to community-scale systems.
- DHHL and rural Maui, Moloka'i, and Hawai'i Island communities should be prioritized as pilot sites.

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Recommendation & SWOT Form

06

RECOMMENDATION SUMMARY

Update 'Bedroom' Definition: Amend the definition of 'bedroom' in HAR 11-62-03 to align with the number of bedrooms as listed on county tax records or building permits, rather than applying the current rule which designates any room over 70 sq ft with adequate window area as a bedroom. Bedroom count may be reassessed with stamped PE approval, at point of sale, or when a building permit for modification is sought. This recommendation explicitly removes the floor plan submission requirement in most cases.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
• Eliminates arbitrary overcounting of bedrooms, particularly in older homes with offices, storage rooms, or converted lanais. • Reduces system over-sizing and associated cost. • Aligns design flow with realistic occupancy and water usage.	• In rural Hawaiian communities, unpermitted additions may create complications when assessing the number of bedrooms.

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
• Significantly reduces IWS sizing for homes with rooms that are not used as bedrooms. Lowers conversion costs for homeowners, and reduces leach field footprints. • Avoids the need for engineers to submit architectural floor plans in most cases, which adds significant expense, and is not always possible where there is no architect	• Properties with shared rooms or multi-generational households may have higher occupancy than bedroom count suggests. • DOH concerns about undercounting wastewater generation in high-occupancy rural homes

ADDITIONAL INFORMATION

- The DOH has already changed the bedroom rule to allow for PE stamped certification of bedrooms, but this rule recommends that county tax records should serve as the baseline, with PE stamps only being required for properties that don't show up on County tax records.

- Florida statute 381.0065(2) excludes hallways, bathrooms, kitchens, living rooms, family rooms, dining rooms, dens, breakfast nooks, pantries, laundry rooms, sunrooms, recreation rooms, media/video rooms, and exercise rooms from the bedroom definition.

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Recommendation & SWOT Form

07

RECOMMENDATION SUMMARY

Allow the DOH to issue Approval to Construct (ATC) for new IWS before all existing cesspools on the property are Certified. Issue the Authority for Use (AFU) after Certification of remaining cesspools on the TMK.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
-Expedites IWS application and installation on properties where a Cesspool Certification in necessary -Cost savings for property owners. Excavation and mobilization costs are consolidated. -Enables simultaneous site work for new septic systems and existing cesspool locating and certification. -AFU is still contingent on proper Cesspool Certification	-DOH staff will need to adjust their process of granting ATC approval. They must also remember that AFU issuance only occurs after cesspool certification

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
-Reduces delays that discourage property owners from replacing old cesspools -Contractors and property owners can schedule work more effectively, reducing overall environmental disruption	-Some cesspools may not eligible for Certification -Requires clear communication to property owner about the Cesspool Certificate requirement

ADDITIONAL INFORMATION

Once completed, please email this form to doh.wwb.cesspool@doh.hawaii.gov.

Recommendation & SWOT Form

08

RECOMMENDATION SUMMARY

Clarify approved manufacturer's installation instructions for chambered systems.
To reduce confusion between manufacturer, installers, designers, and authorizing agency.
Less possibility of systems being denied approval for use due to inconsistent installation procedures, i.e. "feet" of the chambers overlapping versus not overlapping.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
Aligns the intent of the manufacturer with the installer's instructions and the engineer's approved designs.	Could leave less, consistent, effective area for biomat creation. Could leave additional ambiguity between manufacturer and authorizing agency.

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
Streamlined view on how the chambered systems function and how they are installed.	Authorizing agency and manufacturer may not agree on how this specifically works from a treatment standpoint.

ADDITIONAL INFORMATION

Many conversations regarding this issue have come up with multiple licensed contractors and the manufacturer's engineers. Having this be consistent would be a great update in our opinion.

Once completed, please email this form to doh.wwb.cesspool@doh.hawaii.gov.

Recommendation & SWOT Form

09

RECOMMENDATION SUMMARY

Clarify setbacks from structures (exterior wall, lanai with exterior columns, cantilevered deck or additional story).
To reduce confusion between plan reviewer, architects, and engineers.
Less possibility of systems being denied approval for use due to inconsistent installation procedures where a setback is encroached upon and/or additional opportunties to provide development opportunities on constricted lots.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
Provides additional tools for use in constricted lots, providing retrofit and development opportunities.	Future maintenance/replacement could be restricted. Ambiguity on cantilever scenario.

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
Streamlined view on how setbacks are determined by State, County, designers, and installers.	State agency and County agency may not be consistent in this review which would put additional pressure on designers. Less developable use of already constricted properties could lead to inproper or illegal construction/installation.

ADDITIONAL INFORMATION

Many conversations regarding this issue have come up with multiple licensed architects and other home designers. The clarification will assist building permit reviewers with what is possible as design techniques for structures evolve. In a cantilevered scenario, there is an opportunity to install an IWS "under" a portion of the structure, or at least, wthin the 5' setback, without compromising the effectiveness of the treatment.

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Recommendation & SWOT Form

10

RECOMMENDATION SUMMARY

Revise HAR 11-62 to allow greater engineering flexibility in the design of Individual Wastewater Systems (IWS). Specifically, permit alternative configurations where a licensed engineer can demonstrate equivalent or improved performance, including:
-Use of multiple septic tanks serving a single absorption bed
-Non-uniform (asymmetrical) absorption bed layouts and distribution box alignment
-Variable leach line lengths to accommodate site constraints

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
-Allows site-specific design in consideration of topography, lot configuration, and subsurface conditions -Improves feasibility of compliant systems on irregular or constrained parcels -Utilizes licensed professional engineer judgment, supported by calculations and accepted engineering practices -Improve overall system function by avoiding impractical or forced standard layouts	-May require additional Department review time for evaluation of non-prescriptive designs -Increased upfront design effort and associated costs -Requires closer communication to Licensed Installers to ensure they understand the implementation of designs

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
- Reduces reliance on variances by incorporating flexibility directly into the rules - Reduces cost and increases reliability when designs better reflect actual site constraints	-Risk of improperly designed systems if contractors do not understand unique designs - Resistance to change from stakeholders accustomed to prescriptive rules

ADDITIONAL INFORMATION

Under the current prescriptive requirements of HRS 11-62, engineers are often constrained to design systems that meet specific rule configurations rather than those that are most cost-effective, reliable, and appropriate for site conditions.

Once completed, please email this form to doh.wwb.cesspool@doh.hawaii.gov.

Recommendation & SWOT Form

11

RECOMMENDATION SUMMARY

Eliminate '50-lot rule' [HAR 11-62-31.1 (a) (1) (B)] in its entirety. The intent of this rule is two-fold; 1) to limit IWS installations to small developments and 2) to ensure that IWS are not installed in areas of high development density. It's effect however often limits rural development where no centralized collection or treatment systems exist. This intent is covered by other subsections of this subchapter (10k sq.ft. of land area required per IWS, IWS limited to 1000 gpd, etc.) which do not restrict development arbitrarily based on total number of housing units or lots. Density is the key, not an arbitrary number of homes.

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
Would reduce review times for subdivision developments in rural areas where septic systems could be a viable alternative to centralized collection and treatment	Would require some research on the part of DOH reviewing staff to determine maximum density allowed based on county zoning requirements, which vary county-by-county

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
Would allow for larger developments in rural areas where housing shortages are critical as well as reduce costs of development and subsequently the purchase price of new homes in those developments	Could reduce long-term wastewater planning in areas seeing rapid growth, where centralized collection and treatment may become necessary in the future for increased industrial and commercial development

ADDITIONAL INFORMATION

Remember that this rule was written at a time that cesspools were allowed as an IWS option. Septic systems have proven to ""offer as much public health and environmental protection as centralized treatment systems" - EPA Decentralized Wastewater Memorandum of Understanding (MOU). The DOH rules should recognize fundamentally that cesspools are no longer an option for IWS and therefore relax the restrictions on implementing septic systems as a means of treatment in rural areas where centralized collection and treatment is neither cost effective nor more environmentally beneficial.

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Recommendation & SWOT Form

12

RECOMMENDATION SUMMARY

Allow for disposal system sizing based solely on soil hydraulic conductivity (absorption capacity) when an aerobic treatment unit (ATU) is implemented in an IWS, rather than HAR 11-62 Appendix D (Table III).

INTERNAL FACTORS

STRENGTHS +	WEAKNESSES –
Provides more options for cesspool conversions on small or difficult properties and furthers the department's objectives of eliminating cesspools	May result in the installation of more ATUs, requiring more oversight of maintenance processes on the part of ATU owners by DOH

EXTERNAL FACTORS

OPPORTUNITIES +	THREATS –
Provides more options for cesspool conversions to owners of properties which lack land area or access for the installation of large soil absorption systems sized based on Table III Provides a lower upfront cost for cesspool conversion by reducing the cost of excavation for absorption systems sized based on Table III	Will require ongoing maintenance (pumping and servicing of mechanical equipment) and electricity costs of owners who elect to install ATUs in place of septic tanks

ADDITIONAL INFORMATION

11-62 should recognize the fact that Table III and its sizing requirements for soil absorption systems are based on broad distribution of effluent from a septic tank to allow further treatment of constituents in the soil by natural microbial action and that this is not needed when treatment occurs within an ATU, eliminating the need for such large absorption systems.

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