

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. Box 3378
Honolulu, HI 96801-3378
doh.testimony@doh.hawaii.gov

**Testimony in SUPPORT of HB2626 HD1
RELATING TO CESSPOOLS**

SENATOR MIKE GABBARD, CHAIR
SENATE COMMITTEE ON AGRICULTURE AND ENVIRONMENT

SENATOR ROSALYN H. BAKER
SENATE COMMITTEE ON COMMERCE, CONSUMER PROTECTION, AND HEALTH

Hearing Date: March 19, 2018
Time: 2:15 p.m.

Room Number: 224

1 **Fiscal Implications:** The Department of Health (Department) would need an appropriation to hire
2 a third-party consultant to conduct a study as noted in the measure. We appreciate and support the
3 intent of this initiative, but defer to the Governor's Executive Supplemental Budget Request for the
4 Department's appropriations and personnel priorities.

5 **Department Testimony:** The Department supports this measure. The Department agrees that in
6 order to implement the requirements of Act 125, a thorough evaluation of pertinent considerations,
7 including but not limited to funding mechanism options, sewer expansion and connection options,
8 and best practice technology options for upgrading cesspools would be prudent at this time.
9 Cesspools are a major source of pollution to Hawaii's waters. There are approximately 88,000
10 cesspools in the State, discharging approximately 53 million gallons of untreated sewage into the
11 groundwater every day. Groundwater flows into drinking water sources; since ninety-five percent
12 of all drinking water in Hawaii comes from ground water sources, this cesspool pollution can
13 potentially harm human health. Groundwater also flows into streams and the ocean, harming public
14 health and the environment, including beaches, recreational waters, and coral reefs. Hawaii needs
15 to upgrade cesspools statewide as soon as feasible in order to protect the public health and
16 environment.

17 The Department recognizes that it can take up to a year to procure the services of a third-party
18 consultant. The deadline to submit the study should be extended by an additional year
19 (December 31, 2020).

1 **Offered Amendments:**

2 SECTION 1. (c) should be amended to read:

3 “The department of health shall submit the study to the legislature by December 31, 2020.”

4 SECTION 4. should be amended to read:

5 “SECTION 4. There is appropriated out of the general revenues of the State of Hawaii the
6 sum of \$ or so much thereof as many be necessary for fiscal years 2018-2019 and
7 2019-2020 to conduct a study on the upgrade, conversion, or connection of cesspools
8 statewide, including financing issues, and financing mechanisms.”

9 Thank you for the opportunity to testify on this measure.

Harry Kim
Mayor



Wil Okabe
Managing Director

Barbara J. Kossow
Deputy Managing Director

County of Hawai'i
Office of the Mayor

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March 14, 2018

Senator Mike Gabbard, Chair
Committee on Agriculture and Environment
Hawai'i State Capitol, Room 224
Honolulu, HI 96813

Senator Rosalyn H. Baker, Chair
Committee on Commerce, Consumer Protection and Health
Hawai'i State Capitol, Room 224
Honolulu, HI 96813

Dear Chair Gabbard and Baker, and Committee Members:

**Re: HB 2626, HD 1 Relating to Consultant Study on Cesspool Conversion
Hearing Date: 03-19-18 – 2:15 pm; Conference Room 224**

Housing already is barely affordable for many of Hawai'i's people, and the conversion of cesspools to any other system will be a very costly proposition. If cesspools are to be abolished in the State of Hawai'i, it will greatly increase the financial burden on residents hoping for a home someday.

Therefore, I support HB 2626, HD 1, in the hope that it will generate ways to reduce the net expenses our constituents must face. To further that goal, I would ask that an addition to the list of things to be included in the study should be:

(13) Whether conversion can be waived except where there is a finding by DOH that drinking water, public recreation, or coral reefs are at risk of harm.

Respectfully submitted,

A handwritten signature in black ink that reads "Harry Kim".

Harry Kim
Mayor, County of Hawai'i

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU

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LORI M.K. KAHIKINA, P.E.
DIRECTOR

TIMOTHY A. HOUGHTON
DEPUTY DIRECTOR

ROSS S. TANIMOTO, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
WAS 18-99

March 16, 2018

The Honorable Mike Gabbard, Chair
and Members of the Committee on Agriculture and Environment
The Honorable Rosalyn H. Baker, Chair
and Members of the Committee on Commerce,
Consumer Protection, and Health
State Senate
State Capitol
415 South Beretania Street
Honolulu, Hawaii 96813

Dear Chair Gabbard, Chair Baker and Members:

Subject: House Bill 2626, HD1, Relating to Cesspools

The City and County of Honolulu's (City) Department of Environmental Services generally supports HB 2626, HD1, and the long term conversion of cesspools to other waste disposal options.

HB 2626, HD1 and the proposed working group takes a more appropriate larger view which we believe is more appropriate. We believe it is important to take a community by community approach to determine what type of cesspool conversion is appropriate to prevent piecemeal conversions which would limit later willingness, and dollars, to switch to a community wide approach.

Additionally, while important, only addressing cesspool conversions may not fully address the groundwater and nearshore water pollution issues which generated the recent cesspool report. Consideration should be given to using resources to address the major sources of impact rather than just focusing on cesspools.

Thank you for your consideration.

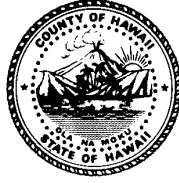
Sincerely,

A handwritten signature in black ink, appearing to read "Lori M.K. Kahikina", is written over a circular stamp. The signature is fluid and somewhat abstract.

Lori M.K. Kahikina, P.E.
Director

Harry Kim
Mayor

Wilfred M. Okabe
Managing Director



William A. Kucharski
Director

Diane A. Noda
Deputy Director

COUNTY OF HAWAI'I

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March 16, 2018

Senator Mike Gabbard, Chair
Committee on Agriculture and Environment
and

Senator Rosalyn H. Baker, Chair
Committee on Commerce, Consumer Protection, and Health
The Hawai'i Senate
415 South Beretania Street, Room 224
Honolulu, Hawai'i 96813

Re: SUPPORT FOR HB 2626 HD 1

Hearing: March 19, 2018 (Mon.), at 2:15 p.m.

Dear Senator Gabbard, Senator Baker, and Committee Members:

The County of Hawai'i fully supports HB 2626 HD 1. Cesspool closures and conversions, and the extraordinarily high costs to do so, are very important to Hawai'i County.

We must resolve the environmental damage being done by cesspools with cost-effective and technically appropriate replacement systems. This bill provides critical support to both the State Department of Health (DOH) and the counties to ensure that better, and more informed, decisions will be implemented for cesspool closures across the state. The bill provides for evaluating new replacement systems and identifying those areas where required upgrades should first occur.

Section 1(b), Task 4, considering the impacts of cesspool closures on lower-income homeowners and reviewing mechanisms for potential assistance, is strongly supported by Hawai'i County. Consideration of a homeowner's ability to pay for cesspool conversions, and potential assistance for lower-income homeowners, is appreciated and encouraged.

Section 1(b), Task 11, considering possible exemptions to the mandatory cesspool conversion requirements, is supported by Hawai'i County. There are areas in Hawai'i County that are believed to be devoid of any viable groundwater resource, and requiring cesspool conversions to

Senator Mike Gabbard, Chair
Senator Rosalyn H. Baker, Chair
March 16, 2018
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protect a groundwater resource that is not present or useable should be evaluated, and exemption criteria established.

Section 2 creates a working group and includes state, county, private sector, and university representation. However, there are no actual responsibilities or authorities specified; Section 2(b) currently provides that the working group's only role is to "work in collaboration" with the selected contractor. We recommend a provision to explicitly strengthen the role of the working group. A strengthened role, such as involvement with the selection of the consultant, and requiring the working group to review and approve all draft reports prior to submission to the Legislature (per Section 3), would improve the role and responsibilities of the working group.

The potential value of this bill cannot be underestimated. HB 2626 HD 1 satisfies a need that none of the counties can provide individually, supports the obligations assigned to DOH, and is an appropriate exercise of State oversight and support.

Thank you for your consideration of this testimony.

Sincerely,

A handwritten signature in black ink, appearing to read "W. A. Kucharski". The signature is fluid and cursive, with a large initial "W" and "A" and a distinct "K" and "C".

William A. Kucharski
Director



CORAL REEF ALLIANCE

To: Senator Mike Gabbard, Chair of Committee on Agriculture and Environment
Senator Rosalyn H. Baker, Chair of Committee on Commerce, Consumer Protection, and Health

Re: HB 2626 HD 1 Relating to Health
Monday, March 19, 2018 2:15 pm
Conference Room 224
State Capitol
415 South Beretania St.

From: Erica Perez - Program Manager (Hawai'i Island)
eperez@coral.org
Coral Reef Alliance (CORAL)

Subject: I am testifying in Support with comments of HB 2626 HD 1 relating to health to establish a study group within Dept. of Health to develop pilot program to address contamination relating to wastewater, cesspools, and shore waters at Puakō.

Links: [*Puakō, Hawaii: Community Feasibility Study and Preliminary Engineering Report*](#)

Attachments: *Replacing Cesspools with Improved Sewage Treatment in Puakō & Waialea Bay: A solution to safeguard Hawai'i's shoreline communities and coral reefs*

I am testifying in Support of HB 2626 HD 1 with additional comments, on behalf of the Coral Reef Alliance (CORAL). CORAL is an international coral reef conservation organization that works with communities, businesses, and governments to save coral reefs, with field offices on Maui and Hawai'i Island. CORAL uses a collaborative and science-based approach to improve coastal water quality. Untreated sewage leaching from residential cesspools is one source of land-based pollution that negatively impacts Hawai'i's coral reefs. Sewage pollution is a direct threat to coral and marine ecosystem health in Hawai'i and to the health of the public and tourists who swim in these waters.

CORAL recommends prioritizing funding and implementing Puakō's cesspool replacement project so that it can serve as a model and help to create momentum for statewide cesspool replacement. CORAL also requests to be included in the process outlined in this bill.

In 2013, the Puakō community, based in South Kohala, Hawai'i, initiated a collaborative project to address their sewage problem and CORAL facilitates this project. Puakō is a priority location identified in the DOH 2018 Report Relating to Cesspools and Prioritization for Replacement. This community comprises a mix of lower income families as well as wealthy families (see page 5 of attached document *Replacing Cesspools with Improved Sewage Treatment in Puakō & Waialea Bay: A solution to safeguard Hawai'i's shoreline communities and coral reefs*). Many homeowners cannot afford to replace their cesspools and leaky septic systems with improved technology. Government support is essential to making these types of solutions feasible.

We recommend Puakō be prioritized for replacement because it is the only priority site with a replacement plan in place. Community members have collectively invested \$2,500,000 to identify an appropriate solution. The community's investment has led to the following achievements:



CORAL REEF ALLIANCE

(1) Researchers from the University of Hawai'i Hilo and The Nature Conservancy have concluded that sewage pollution on the shoreline is coming from residential cesspools, septic tanks and ATUs.

(2) An onsite treatment facility has been identified as the best option to safeguard the health of community members and protect their valuable near shore marine environment. This recommendation is broadly supported by the community, local stakeholders and experts.

See the attached *Puakō, Hawai'i: Community Feasibility Study and Preliminary Engineering Report (PER)* for an evaluation of several treatment options and recommended the community install an onsite treatment facility. The onsite treatment facility is the least expensive over the long term and the only option to address environmental and human-health concerns by eliminating nearly all residential sewage pollution and disposing of it away from the shoreline.

(3) The community has expressed support for moving forwards with the recommended onsite treatment facility, if the cost to homeowners can be reduced. The community has identified the cost that is affordable for them, and we therefore have already identified the fundraising target.

(4) An implementation pathway has been outlined and the project is ready to move forwards once affordable financing is identified.

No other priority site has a solution ready for implementation. We recommend that identifying a financing solution for Puakō is prioritized in HB2626 so that the project can be implemented in the near future. Successful implementation of cesspool replacement in Puakō can be leveraged to inform projects at other priority sites. Specifically, this project provides a model for the following important components of a cesspool replacement project:

- Community and stakeholder engagement and a collaborative decision-making process that has led to local support for the best solution to local sewage pollution
- Facilitation of experts to identify the best technical solution
- Public-private partnership structure for successful implementation
- Collaboration with researchers to identify priority sites for cesspool replacement.

CORAL acknowledges the significant costs and capacity demand associated with leading this statewide effort. We support HB 2626 HD 1 with amendments of including CORAL in the process given the knowledge we have developed working with Puakō. We also recommend prioritizing identifying affordable financing for Puakō.

This will allow the State to use the momentum secured in the Puakō community to establish a pilot program to guide a large statewide transition. CORAL is enthusiastic to share lessons learned and be a part of identifying a sustainable and cost effective solution for wastewater treatment and discharge across the state which prioritizes both coral and human health.

Sincerely,

Erica Perez, Program Manager (Hawai'i Island)
eperez@coral.org



CORAL REEF ALLIANCE

Coral Reef Alliance

Replacing Cesspools with Improved Sewage Treatment in Puakō & Waialea Bay

A solution to safeguard Hawai'i's shoreline communities and coral reefs

"I want to swim in clean water. I want my grandkids to swim in clean water."

- George Fry, Puakō Homeowner



CORAL REEF ALLIANCE

Clean
Water
for **REEFS**

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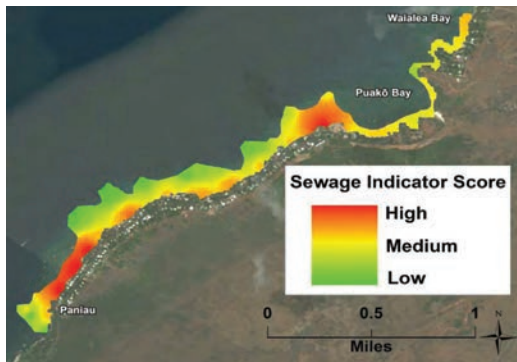
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Problem

Coastal waters across the State of Hawai'i are polluted with 90,000 cesspools releasing 55,000 gallons of raw sewage into our groundwater every day, allowing high levels of nutrients and pathogens to enter the marine environment. This sewage poses risks to human health, damages coral reefs and threatens the tourism industry.

The communities of Puakō and Waialea Bay, in South Kohala, Hawai'i Island showcase this problem and provide us with an ideal case study site to pilot a replicable and scalable solution. Experts from The Nature Conservancy (TNC) and University of Hawai'i Hilo (UHH) have studied these coastal waters intensively and have demonstrated that leaky residential cesspools and septic tanks release high quantities of raw sewage along the shoreline. Seventy-six percent of all sites sampled between 2013 and 2016 exceeded the Hawai'i Department of Health (DOH) standard for fecal indicator bacteria with 91 percent having medium to high pollution scores.



91% had medium to high pollution scores

76% exceeded Hawai'i DOH standard for bacteria found in sewage

66% had high nutrient levels

A strategic solution is needed to safeguard Hawai'i's communities and coral reefs and enable Hawai'i to achieve its goal to replace all cesspools across the state with superior technology by 2050.

Strategic Solutions

Clean Water for Reefs Puakō

To resolve the sewage problem in Puakō and Waialea Bay, the Coral Reef Alliance (CORAL) established Clean Water for Reefs Puakō—a collaborative, community driven project whose goal is to identify and implement an alternative to outdated cesspools and septic tanks. CORAL has worked in these communities since 2014 to identify a solution that maximizes environmental and human health benefits while remaining cost effective for homeowners. The proposed solution has four components.

Component 1: Onsite Wastewater Treatment Facility

In 2014, CORAL contracted AQUA Engineering (AQUA) to conduct the Puakō, Hawai'i Community Feasibility Study & Preliminary Engineering Report¹. AQUA identified and analyzed three alternatives to cesspools and concluded that the solution that best met the project goals would be an onsite wastewater treatment facility with a low-pressure collection system. The proposed facility is more affordable than the gravity-fed systems that are commonly used in Hawai'i because it employs a collection system that is easier to install and maintain.

¹ Please refer to Supplemental Documents

Component 2: Chapter 32 Financing Mechanism

Financing the facility through the *Hawai'i County Code Chapter 32: Special Improvement Financing by Community Facilities Districts (CFD)*² process represents a novel solution to ensure long term financial sustainability of the system by creating a predictable revenue stream in the form of a special tax with two components:

1. **Operation and Maintenance (O&M):** Every homeowner will pay the same fee of \$1,200 per year to cover operation and maintenance costs. Owners of undeveloped lots will not pay this fee.
2. **Facility Rate:** Every homeowner will pay a fee which is calculated based on the square footage of each home. This will cover the debt service on a loan or municipal bond issuance, funds for capital replacement costs, reserve fund and administrative costs.

To initiate a CFD process, 25 percent of landowners (by acreage) must sign a petition to support the improvement. During the public comment period the CFD process can be stopped if more than 55 percent of land owners (by acreage or Tax Member Key [TMK] number) submit written protest. If all steps are completed and supported, the CFD is established and the special tax is levied and payable annually by lot owners.

Component 3: Public-private Partnership

Implementing improvements to wastewater infrastructure in Hawai'i is challenged by lack of funding and capacity, as well as local demands which limit the county's ability to take on new projects. Building and operating the onsite wastewater treatment facility through a public-private partnership maximizes environmental and human health benefits and increases the financial feasibility of the facility for homeowners by expanding the user base, increasing the total amount of sewage treated, and decreasing cost per gallon treated.

Component 4: Securing Additional Funds

Community survey results from 30 respondents indicate that a mean annual rate of \$1,500 (including O&M and facility rate) would place costs of the facility within financial reach. CORAL contracted Webb Associates, experts in civil engineering and planning services, to explore scenarios in which additional funds (\$3, \$5, \$7 and \$9 million) for capital development costs are raised, in order to reduce the cost for homeowners to the acceptable annual rate of \$1,500.

The analysis indicates that implementing an onsite wastewater treatment facility in partnership with the Puakō Marine Lab and Hapuna State Parks and raising a further \$7 million can make the proposed facility financially feasible to homeowners.

² Please refer to Supplemental Documents

Financial Feasibility Analyses

The recommended onsite treatment facility could be designed to serve the Puakō and Waialea communities alone, or designed to also serve other local entities such as the proposed Puakō Marine Lab and the Hapuna State Park system. Three potential user options were investigated to spread the cost more equitably across a larger user base. In Option A, the full facility rate is spread across the Puakō and Waialea communities. As elaborated below, this option is financially unfeasible for homeowners. In Options B and C, which involve public-private partnerships, costs are more broadly distributed and the percentage of the facility rate paid for by each user group is proportional to the gallons of sewage they are estimated to produce. Exempt lots are not included within the CFD financing mechanism and would require capital costs based on usage to be settled by other means. The analyses illustrates the special tax payable by homeowners for the three options and how this tax can be reduced if an additional \$3, \$5, \$7 or \$9 million can be raised to support capital development costs.

The analyses are based on the following assumptions and considerations:

- The facility will require a 40-year loan at a 3.5 percent interest rate
- Capital and development costs include 30 percent contingency
- The operation and maintenance rate will increase 3 percent annually due to inflation

Note that under Act 120 “a temporary income tax credit for the cost of upgrading or converting a qualified cesspool to a septic tank system or an aerobic treatment unit system, or connecting to a sewer system are eligible for the \$10,000 tax credit.” Currently, 53 TMK lots are eligible for this tax credit, which would result in further reducing the special tax burden for qualifying homeowners by approximately \$500 per year. This additional cost reduction is not included in the analyses below.

Estimates on number of gallons of wastewater treated for each user group are from the following sources³:

- *Puakō, Hawai'i Community Feasibility Study & Preliminary Engineering Report (PER)*
- *Final Environmental Assessment Puakō Marine Education and Research Center Puakō, Island of Hawai'i, Hawai'i*
- *Final Environmental Impact Statement Hapuna Beach State Recreation Area Expansion Lalalimo, South Kohala, Hawai'i*

³ Please refer to Supplemental Documents

Option A

Users: Puakō and Waialea Bay communities

Full capital cost of facility: \$14.5 million

Usage: 60,300 gallons per day

Properties connected: 268 TMKs / 89 acres

Option A would require Puakō and Waialea Bay homeowners to take on the full cost of constructing the facility. Table 1 represents community support for the onsite treatment facility under this financing scenario. Although results from community surveys and engagement show significant community support for implementing an onsite treatment facility (43 percent by TMK and 41 percent by acreage), the financial burden is cost prohibitive for many homeowners—even with the scenario in which an additional \$9 million is raised (see Table 3). Only 23 percent of TMK landowners support the facility at full cost. Table 2 is important to demonstrate the wide income disparity in Puakō and Waialea Bay communities. Although the mean household income of \$140,770 exceeds what most wastewater infrastructure grants will approve, the table shows that there are many homeowners who would not be able to afford the costs.

Table 1: Community support for the onsite treatment facility

Puakō & Waialea Bay Engagement & Support	# of TMKs	% TMKs	Acreage	% Acreage
Total TMK Lots	268	100%	89	100%
In Community with	232	87%	76	86%
Not in Community with	36	13%	12	14%
Total Support	110	41%	38	43%
Total Do Not Support	75	28%	22	25%
Cost Concern Data	# of TMKs	% TMKs	Acreage	% Acreage
Total TMK Concern Over Annual Cost	94	35%	27	31%
TMKs that have No Concern Over Annual Cost	61	23%	18	20%

Statistics are current as of 8/31/17 and change on a daily basis.

Option A (continued)

Table 2: Community demographics for Puakō and Waialea Bay

Income and Benefits (2015 Inflation-Adjusted Dollars)	Estimate	Margin of Error	Percent	Margin of Error (%)
Total Households	343	+/-62	100.00%	(X)
Less than \$10,000	19	+/-11	5.50%	+/-3.2
\$10,000 to \$14,999	8	+/-8	2.30%	+/-2.4
\$15,000 to \$24,999	24	+/-23	7.00%	+/-6.3
\$25,000 to \$34,999	6	+/-9	1.70%	+/-2.6
\$35,000 to \$49,999	28	+/-15	8.20%	+/-4.6
\$50,000 to \$74,999	89	+/-39	25.90%	+/-9.1
\$75,000 to \$99,999	26	+/-15	7.60%	+/-3.9
\$100,000 to \$149,000	40	+/-23	11.70%	+/-6.2
\$150,000 to \$199,999	28	+/-17	8.20%	+/-4.7
\$200,000 or more	75	+/-24	21.90%	+/-6.9
Median Household Income (Dollars)	73,750	+/-23,643	(X)	(X)
Mean Household Income (Dollars)	140,770	+/-27,741	(X)	(X)

Source: U.S. Census Bureau, 2011-2015 American community Survey 5-year Estimates

Table 3: Cost and rate analysis for Option A

User Group	Usage (GPD)	Percent Total Usage by User Group	Proportionate Capital Cost Based on Usage (Full Cost)	\$3M Reduction	\$5M Reduction	\$7M Reduction	\$9M Reduction		
Puakō & Waialea	60,300	100%	\$14,452,399	\$11,452,399	\$9,452,399	\$7,452,399	\$5,452,399		
Facilities Tax Class	TMK Square Footage Ranges		Facilities Rate					O&M Rate	# of Units
D1	Less than 1,000		\$1,600	\$1,285	\$985	\$685	\$440	\$1,200	82
D2	1,001 to 2,250		\$2,600	\$2,085	\$1,735	\$1,385	\$1,040	\$1,200	78
D3	2,251 to 3,500		\$3,600	\$2,885	\$2,485	\$2,085	\$1,640	\$1,200	47
D4	3,501 to 4,750		\$4,600	\$3,685	\$3,235	\$2,785	\$2,240	\$1,200	18
D5	4,751 to 6,000		\$5,600	\$4,485	\$3,985	\$3,485	\$2,840	\$1,200	4
D6	6,000 and greater		\$6,600	\$5,285	\$4,735	\$4,185	\$3,440	\$1,200	2
UND	Undeveloped Property		\$4,600	\$6,379	\$5,324	\$4,269	\$3,214	\$0	37
Average Total % Cost Savings to TMK Lot Owners			0%	15%	23%	32%	41%		268

Option B

Users: Puakō and Waialea Bay communities and Puakō Marine Lab

Full capital cost of facility: \$14.5 million

Usage: 67,710 gallons per day

Properties connected: 269 TMKs / 94 acres

Option B would spread the cost between the Puakō and Waialea Bay homeowners and the Puakō Marine Lab. The current facility design as outlined in the PER is sufficient to meet the needs of the communities and the lab. The University of Hawai'i (UH) Foundation plans to build the Puakō Marine Lab on state land in between Puakō and the Waialea community, for which it already has a lease. The wastewater treatment facility can be sited on this land, thus reducing the cost of the project by \$500,000, which is not demonstrated in the above analysis. With this option, the financial burden continues to be cost prohibitive for homeowners. Even if an additional \$9 million is raised the annual cost to homeowners is greater than the annual target of \$1,500 (see Table 4).

Table 4: Cost / rate analysis for Option B

User Group	Usage (GPD)	Percent Total Usage by User Group	Proportionate Capital Cost Based on Usage (Full Cost)	\$3M Reduction	\$5M Reduction	\$7M Reduction	\$9M Reduction		
Puakō & Waialea	60,300	89%	\$12,870,767	\$9,870,767	\$7,870,767	\$5,870,767	\$3,870,767		
Puakō Marine Lab	7,410	11%	\$1,581,632	\$—	\$—	\$—	\$—		
Total	67,710	100%	\$14,452,399	\$9,870,767	\$7,870,767	\$7,452,399	\$3,870,767		
Facilities Tax Class	TMK Square Footage Ranges	Facilities Rate						O&M Rate	# of Units
D1	Less than 1,000	\$1,440	\$1,010	\$760	\$510	\$320	\$1,200	82	
D2	1,001 to 2,250	\$2,340	\$1,810	\$1,460	\$1,110	\$770	\$1,200	78	
D3	2,251 to 3,500	\$3,240	\$2,610	\$2,160	\$1,710	\$1,220	\$1,200	47	
D4	3,501 to 4,750	\$4,140	\$3,410	\$2,860	\$2,310	\$1,670	\$1,200	18	
D5	4,751 to 6,000	\$5,040	\$4,210	\$3,560	\$2,910	\$2,120	\$1,200	4	
D6	6,000 and greater	\$5,840	\$5,010	\$4,260	\$3,510	\$2,570	\$1,200	2	
UND	Undeveloped Property	\$7,127	\$5,545	\$4,490	\$3,435	\$2,380	\$0	37	
Average Total % Cost Savings to TMK Lot Owners		7%	21%	30%	39%	49%		268	

Option C

Users: Puakō and Waialea Bay communities, Puakō Marine Lab and Hapuna State Parks

Full capital cost of facility: \$18.1 million

Usage: 136,870 gallons per day

Properties connected: 269 including all Hapuna Beach System TMKs / 940 acres*

**Assumes all 846 acres of Hapuna property will be serviced by the facility*

Option C would spread the cost between Puakō and Waialea Bay homeowners, the Puakō Marine Lab and Hapuna State Parks. The facility design would need to be altered to absorb the extra capacity and the project cost will increase to \$18.9 million. Despite the capital cost increase, the annual cost to homeowners is lowered because project costs are distributed across more users and the facility becomes financially feasible for 82 TMKs with only an additional \$7 million raised (see Table 5).

Table 5: Cost / rate analysis for Option C*

User Group	Usage (GPD)	Percent Total Usage by User Group	Proportionate Capital Cost Based on Usage (Full Cost)	\$3M Reduction	\$5M Reduction	\$7M Reduction	\$9M Reduction		
Puakō & Waialea	60,300	44%	\$8,303,572	\$5,303,572	\$3,303,572	\$1,303,572	\$—		
Puakō Marine Lab	7,410	5%	\$1,020,389	\$—	\$—	\$—	\$—		
Hapuna Park	69,160	51%	\$9,523,632	\$—	\$—	\$—	\$—		
Total	136,870	100%	\$18,847,593	\$5,303,572	\$3,303,572	\$1,303,572	\$—		
Facilities Tax Class	TMK Square Footage Ranges		Facilities Rate					O&M Rate	# of Units
D1	Less than 1,000		\$730	\$435	\$225	\$105	\$—	\$1,200	82
D2	1,001 to 2,250		\$1,530	\$1,010	\$675	\$330	\$—	\$1,200	78
D3	2,251 to 3,500		\$2,330	\$1,585	\$1,125	\$555	\$—	\$1,200	47
D4	3,501 to 4,750		\$3,130	\$2,160	\$1,575	\$780	\$—	\$1,200	18
D5	4,751 to 6,000		\$3,930	\$2,735	\$2,025	\$1,005	\$—	\$1,200	4
D6	6,000 and greater		\$4,730	\$3,310	\$2,475	\$1,230	\$—	\$1,200	2
UND	Undeveloped Property		\$4,718	\$3,136	\$2,081	\$1,025	\$—	\$0	37
Average Total % Cost Savings to TMK Lot Owners			27%	42%	51%	63%	74%		268

**Cost allocation is based on usage on weekends at buildout.*

Conclusion

Option C – building and operating this facility through a public-private partnership with the Puakō and Waialea Bay Community, Puakō Marine Lab and Hapuna State Parks – creates the greatest environmental and human health benefits, while achieving financial feasibility for homeowners. Raising an additional \$7 million will enable us to reach our target of reducing the annual cost to \$1,500 per year for 82 homeowners in Puakō and Waialea Bay.

Direct benefits resulting from implementing this plan include:

- Approximately 50 million gallons of wastewater will be prevented from entering the marine environment each year, which will improve coral reef health and reduce risks to human health.
- Cost efficiency associated with building and operating the onsite wastewater treatment facility will be maximized by expanding the user base, increasing the total amount of sewage treated and decreasing the cost per gallon treated.
- Homeowners will benefit from a 63 percent reduction in annual rates, resulting in a rate that is financially feasible for class D1 homeowners.

Beyond the direct benefits that can be generated along the Puakō shoreline, establishing a successful model in Puakō could lay the groundwork for adoption of this model across Hawai'i. This would not only support Hawai'i's 2050 goal to replace all cesspools across the state with superior technology, but could provide a long-term solution to safeguard the health of both people and coral reefs for future generations.

Next Steps

- Secure a public-private partnership for owning, operating and maintaining the wastewater treatment facility
- Establish a partnership with the University of Hawai'i (UH) Foundation to support capital development, potentially provide land on which the facility could be built, and connect the proposed UH Foundation-owned Puakō Marine Lab to the wastewater treatment facility
- Establish a partnership with Hapuna State Parks to support capital development, and connect state park restrooms to the wastewater treatment facility
- Raise an additional \$7 million to ensure that the annual cost to homeowners in the Puakō and Waialea Bay communities is financially feasible
- Continue to engage the Puakō and Waialea Bay communities and keep them apprised of updates and setbacks

Clean Water for Reefs Project Information

The Clean Water for Reefs Puakō project is guided by an advisory committee, which comprises experts and representatives from, academia, the Puakō and Waialea communities, as well as representatives from the construction, civil engineering and nonprofit sectors. In addition to this committee, a suite of experts have consulted on the engineering, planning and financing aspects of this project.

Advisory Committee



UNIVERSITY
of HAWAII
HILO



CORAL REEF ALLIANCE

Consulting Experts



HB-2626-HD-1

Submitted on: 3/16/2018 3:01:41 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Bill Carpenter Jr	Testifying for Envirocycle Cesspool Replacements	Comments	No

Comments:

If the problem of land and water pollution caused by cesspools is to be solved it is time to completely reorganize Hawai'i Department of Health - Wastewater Branch (DOH-WWB) and fully revisit the truly arcane Hawai'i on-site treatment system regulations.

1. The DOH-WWB policy of replacing cesspools with septic systems does virtually NOTHING to solve the human waste pollution problem. Septic systems in Hawai'i do not effectively reduce pathogens (infection-causing bugs) or nitrates (a coral reef killing substance).

2. The DOH-WWB policy of requiring two fully-functioning drain fields is not necessary with modern technology and adds greatly to the consumer cost of a proper cesspool/septic system replacement.

3. The DOH-WWB policy of requiring two hundred gallons of treatment per bedroom per day is not in line with National norms and adds greatly to the cost of a technologically advanced cesspool replacement.

4. The DOH-WWB policy of not allowing the safe re-use of treated wastewater for underground drip irrigation of landscaping adds unnecessary cost to modern cesspool replacement systems.

5. The DOH-WWB policy of allowing only Hawai'i-registered engineers to design modern cesspool replacement systems blocks much-needed talent and reduces the sheer numbers of women and men needed to efficiently tackle the tremendous task of replacing Hawai'i's 88,000+ cesspools.

6. The DOH-WWB policy of allowing only Hawai'i-registered engineers to design technologically advanced cesspool replacement systems dramatically increases the cost to the Hawaii consumer to replace cesspools due to limited competition.

7. The DOH-WWB policy of requiring commercial/industrial grade construction and testing of residential cesspool replacement systems over 1,000 gallons per day is

greatly out of line with National norms and adds tremendously to the cost of a low-cost technically advanced cesspool replacement system.

8. The DOH-WWB policies of discouraging (or outright blocking) new technologies that can cost-effectively solve the cesspool pollution problem must be investigated and eliminated.

9. DOH-WWB public employees must be required to receive continuing education in the art of on-site wastewater treatment to keep their jobs. A huge obstacle to solving the cesspool pollution problem has been the ineffective management within DOH-WWB, lack of "out of the box" thinking by employees of the DOH-WWB, and the tendency to "play favorites" with certain system designers, contractors, and system manufactures to keep the status quo-- to the detriment of the citizens, land and sea animals & plants, and the coastal and fresh waters of the Hawai'ian Islands.

10. As proof of the systematic problems within the DOH-WWB, the US EPA needed to step in to regulate and help solve the enormous human waste pollution caused by Hawai'i Large Capacity Cesspools because DOH-WWB could not effectively do so.

The Envirocycle Cesspool Replacement System for Hawai'i was invented to cost effectively solve Hawai'i's cesspool pollution problem. It allows the 100% safe reuse of the clear and odor free treated water for landscape irrigation and toilet flushing. This modern cesspool replacement system fits in approximately the same square footage as a cesspool and can be used above or below ground. It uses the same amount of electricity as a medium size refrigerator. Two United States patents have been issued for the technology and this technology has been certified THREE TIMES by University of Hawai'i at Manoa Water Resources Research Center to meet and be better than the on-site treatment system de facto National treatment standards as well as US EPA treatment standards. The Envirocycle Cesspool Replacement System is one-half the price of typical cesspool replacement products in Hawai'i. Low interest rate Federal government backed loans are currently available to Hawai'i residents to buy Envirocycle Cesspool Replacement Systems.

Without addressing the DOH-WWB policy and personnel problems mentioned in the 10 points above, no law drafted or passed, or incentive ever presented by the Hawaii Legislature will be enough to allow the citizens of Hawai'i to solve this horrific third-world human excrement cesspool poisoning of the Hawai'i 'Aina and Wai.

With Aloha,

Bill Carpenter Jr.

Inventor

Envirocycle Cesspool Replacement System for Hawai'i

www.EnvirocycleHawaii.com

808-792-1220

bill@envirocycleglobal.com

The Twenty-Ninth Legislature
Regular Session of 2018

STATE SENATE

Committee on Agriculture and Environment

Senator Mike Gabbard, Chair

Senator Gil Riviere, Vice Chair

Committee on Commerce, Consumer Protection, and Health

Senator Rosalyn H. Baker, Chair

Senator Jill N. Tokuda, Vice Chair

State Capitol, Conference Room 224

Monday, March 19, 2018; 2:15 p.m.

**STATEMENT OF THE ILWU LOCAL 142 ON
H.B. 2626 H.D. 1, RELATING TO CESSPOOLS**

The ILWU Local 142 supports H.B. 2626 H.D. 1, which requires the Department of Health to hire a third-party consultant to conduct a study on the issues relating to the upgrade or conversion of cesspools, establishes the cesspool conversion working group to assist the third-party consultant on the study, and appropriates funds.

H.B. 2626 H.D. 1 specifically provides that a Department of Health hired third-party consultant must conduct a study on "cesspool conversion," as required by Act 125, Session Laws of Hawaii 2017, and shall do so in collaboration with the newly established cesspool conversion working group. Areas of focus for the study include, but is not limited to:

- financing issues and the feasibility of various mechanisms, including grants, loans, tax credits, fees, special assessment districts, requirements for conversion at point of sale, and any other appropriate mechanisms for accomplishing and funding cesspool conversion, or any combination of these mechanisms;
- owners' ability to pay for cesspool conversions, especially how assistance can be provided for lower-income homeowners; and
- the most cost-effective approach to cesspool conversion.

The bill delineates the selection process for the working group and requires a report be submitted to the legislature by December 31, 2019. Furthermore, it provides a blank appropriation to conduct the study and ultimately sunsets on July 1, 2020.

The ILWU understands the very real water pollution concerns related to cesspools and generally supports the transition to appropriate wastewater treatment. We, however, believe it unreasonable to expect working class families trying to survive in Hawaii's tough cost-of-living environment or retirees on fixed incomes in rural areas to do so without significant financial assistance.

As such, the ILWU urges passage of H.B. 2626 H.D. 1 to facilitate the review of wastewater treatment best practices and reasonable financing methods to ensure full compliance with Act 125, Session Laws of Hawaii 2017. Thank you for the opportunity to share our views on this matter.



O'ahu
Chapter

[Surfrider Foundation O'ahu Chapter](#)

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HB2626: In Support

DATE: Monday, March 19th 2018

TIME: 2::15 P.M.

PLACE: Conference Room 224

Aloha Members if he AEN/CPH Committees,

As the O'ahu Chapter Coordinator of the Surfrider Foundation, I am writing in strong support of HB2626, the bill requiring a Cesspool working group to better understand the mechanisms for upgrades of these archaic and environmentally destructive waste disposal systems. Since the passage of Act 120 two years ago, there have only been a handful of cesspool upgrades, and we are working with the Hawaii Dept. of Health (DOH) to improve their public outreach and community involvement.

Non-point source discharge from cesspools in Hawaii is a serious threat to our water quality, and this bill would create a working group to come up with the best ways to do cesspool upgrades, conversions or connections to sewer lines. With about 88,000 across the state, Hawaii has the highest number of cesspools in the country, and many pose a threat to water resources. These substandard wastewater systems leach untreated human waste, harmful pathogens and nutrient loads into nearby waters. Cesspools are a leading source of water pollution, and their effluent can contaminate drinking water sources, streams and oceans with disease-causing pathogens, algae-causing nutrients and other harmful substances.

In monitoring the water quality of North Shore beaches on Kauai, the Surfrider Chapter there has seen improvement after the replacement of cesspools at Kauai County beach parks and along the Hanalei River, where enterococcus counts at the beach at the Pavilion and estuary decreased approximately 56% between 2004 and 2013. Where sewer connections are not available, septic systems and ATU's are a big step forward in protecting public health and the environment. We helped pass the bill to give homeowners tax credits for upgrading their cesspools within 400 feet of the shoreline, waterways or wells because they are the most dangerous. We hope they will make sure the replacements have some form of aerobic digestion.

Unfortunately, we recognize that the \$10,000 tax credit does not cover the full cost of new septic systems, which can be as much as \$20k-\$30k. So we support creating a working group to study the issue and come up with the best solutions for the state. While we understand that the issue is complicating because of the heavy cost of upgrades, the situation is also of pressing need. Our marine resources and public health are at stake. Ultimately, the science already exists to prove the problem and the precedent has already been set – no other State allows these archaic infrastructure pieces to be used. The reasons are very simple, the



**O'ahu
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uncontrolled release of untreated human waste into our freshwater and nearshore ocean waters is a detriment to all levels of the health spectrum. One very obvious suggestion is to begin charging monthly fees for all cesspool users to fund a cesspool conversion fund. If members of our community pay sewer fees to dispose of their human waste, it seems natural that the members of community who contribute the most to contaminated release of human waste, would also have to pay fees. We understand that there are issues of equity and historical negligence associated with this funding scheme and thus the reason to support this working group.

Mahalo for your time and effort working on this important issue.

With Aloha,

Rafael Bergstrom
O'ahu Chapter Coordinator, Surfrider Foundation.

HB-2626-HD-1

Submitted on: 3/18/2018 2:14:07 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Melodie Aduja	Testifying for OCC Legislative Priorities Committee, Democratic Party of Hawai'i	Support	No

Comments:

To the Honorable Mike Gabbard, Chair; the Honorable Gil Riviere, Vice-Chair, and Members of the Senate Committee on Agriculture and Environment:

To the Honorable Rosalyn H. Baker, Chair; the Honorable Jill N. Tokuda, Vice-Chair, and Members of the Senate Committee on Commerce, Consumer Protection, and Health:

Good afternoon. My name is Melodie Aduja. I serve as Chair of the Oahu County Committee ("OCC") on Legislative Priorities of the Democratic Party of Hawaii. Thank you for the opportunity to provide written testimony on House Bill No. 2626 HD1 relating to Cesspools; Working Group; Study; and an appropriation.

The OCC Legislative Priorities Committee is in favor of House Bill No. 2626 HD1 and supports its passage as it requires the Department of Health to hire a thirdparty consultant to conduct a study on the issues relating to the upgrade or conversion of cesspools and establishes the cesspool conversion working group to assist the third-party consultant on the study.

House Bill No. 2626 HD1 is in accord with the Platform of the Democratic Party of Hawai'i ("DPH") which provides that "[w]e support the protection of our 'aina against destruction by corporate, government, or military usage and expect full restoration and reparation of environmental damage. To handle current and future demands for water, we must assess the current condition of our aquifers and take appropriate actions to secure our fresh water resources.

We support democratic participation of citizens and residents to protect (i) valuable coastal ecosystems and reefs from misuse and (ii) beaches for public use and recreation. The Hawai'i Coastal Zone Management (CZM) law, HRS Chapter 205A, currently provides for public participation in management of coastal resources.

We believe in the vigorous enforcement of our environmental laws and increased public-private stewardships and citizen involvement in protecting our resources. (Platform of the DPH, P.8, Lines 422-433 (2016)).

Given that House Bill No. 2626 HD1 requires the Department of Health to hire a third-party consultant to conduct a study on the issues relating to the upgrade or conversion of cesspools and establishes the cesspool conversion working group to

assist the third-party consultant on the study, it is the position of the OCC Legislative Priorities Committee to strongly support this measure.

Thank you very much for your kind consideration.

Sincerely yours,

/s/ Melodie Aduja

Melodie Aduja, Chair, OCC Legislative Priorities Committee

Email: legislativepriorities@gmail.com, Text/Tel.: (808) 258-8889

HB-2626-HD-1

Submitted on: 3/14/2018 10:41:21 AM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Jennifer Milholen	Individual	Support	No

Comments:

HB-2626-HD-1

Submitted on: 3/14/2018 1:20:38 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
leonard wolf	Individual	Support	No

Comments:

We live in Puako. We have a wastewaterer problem which affects our heath and the hearth of our reef.We need your support.Please help us

HB-2626-HD-1

Submitted on: 3/14/2018 6:38:58 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Peter Hackstedde	Individual	Support	No

Comments:

Puako residents are well aware of the impact of cesspools on the reef. We have 10 years of scientific study of the problem. We have invested 2.5 million dollars of Community money into a solution. A sewage treatment plant will get rid of the sewage from cesspools and Septic tank leach fields. It's bad when you go in the ocean with a cut or sore and wind up in the ER with a infection. Please Help keep Puako Safe.

HB-2626-HD-1

Submitted on: 3/17/2018 12:58:11 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Michele Nihipali	Individual	Support	No

Comments:

Aloha committee members,

The conversion from cesspools to septic tanks and connection to main sewer lines will involve a dedicated committee. An outside consultant can streamline the process, identify issues and propose solutions. I strongly support this bill and urge you to pass it.

Mahalo for reviewing my testimony,

Michele Nihipali

████████████████████

Hauula, HI 96717

HB-2626-HD-1

Submitted on: 3/17/2018 12:18:52 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
janice palma-glennie	Individual	Support	No

Comments:

HB-2626-HD-1

Submitted on: 3/17/2018 3:24:51 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
B.A. McClintock	Individual	Support	No

Comments:

Please support this important bill

HB-2626-HD-1

Submitted on: 3/17/2018 4:12:30 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Laura Gray	Individual	Support	No

Comments:

HB-2626-HD-1

Submitted on: 3/18/2018 1:51:41 AM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara L. George	Individual	Support	No

Comments:

SUPPORT!

HB-2626-HD-1

Submitted on: 3/18/2018 1:57:54 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Kim Jorgensen	Individual	Support	No

Comments:

I strongly support HB2718 because something has to be done urgently about this very unhealthy and dangerous problem.

HB-2626-HD-1

Submitted on: 3/18/2018 12:36:09 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Denise Boisvert	Individual	Support	No

Comments:

I strongly support HB2718. The Department of Health needs to urgently hire an expert to figure out how to **cut the crap** that is polluting groundwater, beaches, and endangering health, once and for all!

Sincerely,

Denise Boisvert

Waikiki

HB-2626-HD-1

Submitted on: 3/18/2018 2:47:09 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Sandra Fujita	Individual	Support	No

Comments:

HB-2626-HD-1

Submitted on: 3/19/2018 8:41:27 AM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Lacques	Individual	Support	No

Comments:

HB-2626-HD-1

Submitted on: 3/18/2018 6:54:30 PM

Testimony for AEN on 3/19/2018 2:15:00 PM

Submitted By	Organization	Testifier Position	Present at Hearing
Emily Garland	Individual	Support	No

Comments:

Aloha,

Cesspools cause great damage to our ocean and waterways. However, transitioning away from them can be daunting and expensive. Please support this bill.

Mahalo,

Emily Garland

Hilo resident