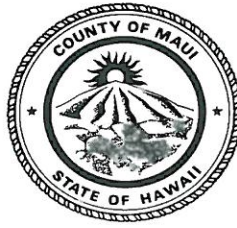


ALAN M. ARAKAWA  
Mayor  
STEWART STANT  
Director  
MICHAEL M. MIYAMOTO  
Deputy Director



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ERIC NAKAGAWA, P.E.  
Wastewater Reclamation  
Division

COUNTY OF MAUI  
DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT  
2050 MAIN STREET, SUITE 2B  
WAILUKU, MAUI, HAWAII 96793

April 17, 2017

Honorable Alan M. Arakawa  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

APPROVED FOR TRANSMITTAL  
  
Mayor Date 4/18/17

For Transmittal to:

Honorable Elle Cochran  
Chair, Infrastructure and Environmental Management Committee  
Maui County Council  
200 South High Street  
Wailuku, Hawaii 96793

Dear Chair Cochran:

**SUBJECT: WASTEWATER INFRASTRUCTURE NEEDS (IEM-20)**

In response to your April 4, 2017 request for information on dye studies and a potential Maui Meadows Sewer System project we offer the following:

**1. Explain what is required to perform a dye study to determine wastewater flows to the ocean from an area like Maui Meadows.**

Dye introduction points need to be identified. There are 600 or more cesspools/septic/ATU disposal points in the subdivision that could be utilized. All are private so permission needs to be obtained. One introduction point will not be representative of the entire subdivision, so some criteria for choosing how many locations to introduce the dye needs to be determined and agreed upon. Detection is also problematic. There are not any identified locations of freshwater seeps into the ocean in the Wailea/South Maui area, so several miles of coastline need to be monitored. Detecting dye can be very complicated unless it finds its way to an underground stream and arrives in a short period of time in a high concentration. Depending on the concentration of dye when it reaches the ocean it may not be visible to the naked eye and a fluorimeter may need to be deployed via a boat or other means. Travel time is unknown so monitoring could last days, weeks, months, maybe more.

**2. Does the Department of Environmental Management have the ability to perform the dye study on its own?**

No we do not have the expertise or the equipment to do a comprehensive test.

**3. If the dye study can be performed by the Department, please provide estimated costs associated with the study.**

The department does not have the personnel to conduct the study.

**4. Should the dye study require procurement of services, provide the estimated cost for such services.**

The dye test conducted at the Lahaina WWRF started with a base cost of approximately \$300,000 paid for by EPA and the Corps of Engineers. Because of the extent of the final reporting, duration of the sampling and added study elements it probably cost nearly \$500,000. The design of the study is key and should be made with the aid of consultants who are able to model the probable outcomes by considering the underground hydrogeology, and are familiar with dye types, volumes and concentrations required, probable detection locations, detection equipment, sampling methods and lab requirements, etc. It is important to follow a scientific approach in order to avoid results that may lead to unusable data, false conclusions and unnecessary responses.

**5. Are there other areas within the County of Maui that have cesspools as wastewater systems that would benefit from a dye study?**

Wahikuli, Olowalu, Haiku, North Waiehu, Laniupoko, Kahana Hui 1708 Subdivision, and Kapalua Plantation Estates would all be candidates. The later three most likely utilized septic systems in their development and would have a smaller impact on the environment.

**6. What is the status of the Maui Meadows Sewer System project?**

A preliminary layout was prepared to come up with a rough magnitude cost estimate. The project was placed on the 20 year CIP in order to keep it on the table as a potential future project.

**7. In the 2017 Fiscal Year Budget the Maui Meadows Sewer System project was estimated for \$1,500,000 for fiscal years 2018-2022. Is the Department still planning to include this project in future budgets?**

The department plans on dropping this project off of our 20 year Capital Improvement Plan (CIP) when it is updated later this year. The Wastewater Reclamation Division has many other high priority projects scheduled that are required to keep its infrastructure and systems working at an acceptable level of service. Funds are very limited for service expansion projects. The \$1.5 million listed was only for preliminary engineering studies, site surveys, system design and possible land acquisition. The overall construction cost will be near \$20 million due to the topography, geology of the area and the number of lots involved. It will require blasting through rock, construction through rear and side yard easements, and the preparation and processing of those easements. Some upgrades in capacity to existing sewer lines within South Kihei Road may also be necessary. In addition, there will be costs to each lot owner for retrofitting of their private plumbing to connect to installed laterals (\$5 to \$15K per lot.) These considerations are why the County allowed development of Maui Meadows without

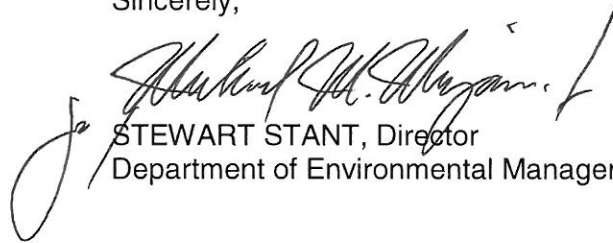
the construction of a sewer system when it was first developed.

**8. *Would the Department consider accelerating the Maui Meadows Sewer System project for planning and design phases sooner?***

Not unless directed by the mayor to do so and funds are made available that will not affect sewer rates for current customers.

Should you have any questions, please contact Michael Miyamoto at ext. 8229.

Sincerely,



STEWART STANT, Director  
Department of Environmental Management

xc: Wastewater Reclamation Division