From:	John Kemmerer
To:	Wendy Wiltse
Cc:	David Albright; Doug Eberhardt
Subject:	Re: Fw: DOH-USGS Maui wastewater source-tracking surveys -- Strategy meeting Nov 20 ?
Date:	11/07/2007 03:05 PM
Attachments:	gepprobeTechLaw-040.jpg gepprobeTechLaw-077.jpg

Wendy - The USGS notes raise a few questions/concerns:

1. The first sentence of your initial message mentioned "Kona and Maui." The USGS notes mention Kihei and Lahaina. What happened to Kona (Kealekehe)?

2. Deliberative [redacted]

3. Deliberative [redacted]

▼ Wendy Wiltse/R9/USEPA/US

Wendy Wiltse/R9/USEPA/US	To	John Kemmerer/R9/USEPA/US@EPA, David Albright/R9/USEPA/US@EPA, Doug Eberhardt/R9/USEPA/US@EPA
11/05/2007 08:03 PM	cc	
	Subject	Fw: DOH-USGS Maui wastewater source-tracking surveys -- Strategy meeting Nov 20 ?

See red type below for more specifics about USGS proposed work on Maui injection wells.

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----- Forwarded by Wendy Wiltse/R9/USEPA/US on 11/05/2007 06:01 PM -----

Charles D Hunt
<cdhunt@usgs.gov>

To Wendy Wiltse/R9/USEPA/US@EPA

cc watson.okubo@doh.hawaii.gov

11/05/2007 10:35 AM

Subject Re: DOH-USGS Maui wastewater source-tracking surveys -- Strategy meeting Nov 20 ?

Thanks, Wendy, for clarifying goals. I've interleaved detailed responses below in red italic.

Chip Hunt --USGS-- 808-587-2414 cdhunt@usgs.gov

Chip and Watson:

Thank you both for your updates this week about the plans for work in Kona and Maui. I'm very pleased that we will be able to do this work and at the opportunties to coordinate with other parties working in these areas.

Regarding the Nov. 20 meeting, I'd like to have a few minutes at the beginning of the meeting to clarify EPA's goals in funding this work (via DOH).

Our primary interest relates to permitting of municipal wastewater injection wells.

In that case, we'll expect to focus mainly on the Kihei and Lahaina municipal injection plumes for most of our laboratory samples, and will look to EPA/DOH for direction on any high-priority cesspool sites, if any, that may merit a couple of samples. Wading / trolling can still be done at a couple cesspool sites with relatively little effort taken away from the municipal plumes.

We want to know if there is a factual basis for regulating these wells under the Clean Water Act.

We'll leave that up to you regulatory agencies, of course. The one thought that occurs to me is the exact wording and how it's interpreted. I've been told a criterion is whether there is "a direct connection with surface water bodies" or something to that effect, and I'd wonder how the case of injection and then ground-water seepage to the water body has been interpreted. Perhaps anything short of a direct canal, ditch, or pipe outfall type of connection is permissible under the Act ? Your experts in the UIC program likely have a long-standing perspective on where injection wells fall in the overall regulatory scheme.

The following information is of use to us in making that determination:

Can we document that the injected wastewater reaches the ocean?

Our wading surveys and lab chemistry samples are designed to answer this, although at a level that may be more inferential than some will be satisfied with. Follow-up sampling is likely to be required to reach a more "confirmed" conclusion. This would entail analyzing for more of the things that are in wastewater, such as pharmaceuticals and personal-care products. These first surveys are intended to help target locations for that follow-up sampling.

What is the location and aerial extent of any detected wastewater plume?

This is what our surveys are mainly designed to answer, at a reconnaissance level. To sniff out "where" but with less ability to say "how much" or "how dilute".

What are the water quality characteristics of that plume? How much dilution/attenuation of nutrients occurs before the plume reaches the ocean?

Our first surveys will give a qualitative-to-semiquantitaative measure of these aspects. More quanititative answers will have to come from 2 other approaches, in my estimation: (1) marine water-column and bottom porewater sampling by marine scientists who are expert in working in the saltwater environment and with highly "saltwater diluted" samples; (2) on-land sampling higher up the beach face or just inland to sample ground water just before it gets into the highly variable and complicated shore zone; this will require a "push-sampling rig". NOAA has one in the Pacific Northwest, below are a couple photos.

Are there indicator bacteria in the plume?

This would be best answered by DOH sampling for indicator bacteria, since they do it regularly and know the protocols. This could be done at the same time as our initial surveys, or could wait for the results to better see which areas should be "targeted". Again, that's one of the principal objectives of the DOH/USGS quick-reconnaissance surveys: to help target or prioritize sites for more intensive sampling.

Does the wastewater contribute to algal problems, exceedences of water quality standards, or other water quality probelms in the ocean?

These questions fall in the realm of expertise of marine biologists and chemists that we've invited to the meeting. Celia Smith and Frank Sansone have ongoing work that bears on these questions, and they worked on the same NOAA grant that funded USGS's report on the Kihei injection plume. Steve Dollar also has conducted relevant work as part of the 1990s Lahaina algal task force studies and other studies of his around the State. Despite useful results to date, some amount of new work may be required in the precise locations that we hope will be defined by our surveys. At Kihei, for example, fixed sites where intensive measurements were made by Smith's and Sansone's research groups lay just outside of the main plume extent estimated by USGS modeling. So the natural course of study from here on out will be (1) reconnaissance surveys across the expected plumes to detect anomalies and define plume extent observationally; (2) follow-on marine and on-land chemistry to confirm wastewater presence, dilution, and to assess "exceedence" issues; (3) ecosystem assessment to answer algal and other ecosystem questions.

Cesspools are a secondary concern for EPA, if there is time and money left after addressing the injection wells. The questions for cesspools are essentially the same.

I havea LARGE print of that beautiful Pat Chavez aerial photo of the Lahaina area that I'll bring as a "visual aid".

Watson, have you invited Chauncey Hew and Harold Yee to attend? They may well be interested.

See you then.

Wendy

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10/31/2007 04:59 PM

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cc
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Subject
DOH-USGS Maui wastewater source-tracking surveys -- Strategy meeting Nov 20 ?

Dear All -

I'd like to invite you to a planning / strategy meeting Tues Nov 20 at 9:30 am for upcoming DOH-USGS nearshore water-quality surveys on Maui. The meeting will be at DOH Clean Water Branch office at 919 Ala Moana near Ward, room 301. Field work is tentatively planned for late January and February 2008.

If interested but can't make that date, perhaps a colleague can attend on your behalf.

The main purpose of the meeting will be to identify shore segments of highest interest on the Kihei and Lahaina coasts, and to provide an opportunity to coordinate among our various working groups, as some of you have ongoing work or past experience in these areas. We'll be laying out maps and aerial photos for discussion and arm-waving.

Background:

Hawaii Dept of Health and USGS have been developing methods for rapid mapping of nearshore water quality patterns, with an emaphasis on wastewater detection. The intent is for a quick-reconnaissance capability and spatial coverage that can supplement more intensive measurements at fixed sites.

We're using a CTD-type instrument plus a couple addtional wastewater-specific tracers such as 15N and optical-brightener-fluorescence. We're also using a retractable wellpoint to obtain beach porewater samples quickly. Proof-of-concept surveys showed modest success on Oahu, and so now DOH and EPA would like to conduct surveys on Maui. We'll transect across the Kihei and Lahaina municipal injection plumes as well as other stretches of coast, with the main intent being to "sniff" for a wastewater component in ground-water discharge. Here's a project description and slide presentation. Here's a photo that shows us trolling right along the shore at Kualoa Beach Park on Oahu. We're working much closer inshore than most marine work that's been done to date, although we can readiily make a couple transects moving progressively offshore from the beach, maybe floating downwind on a surfboard if beyond wading depth.

Thanks for your consideration, we hope you'll be able to join us for this strategy meeting. Please give me a call if you'd like more info

ahead of the meeting.

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USGS Pacific Islands Water Science Center
http://hi.water.usgs.gov

(See attached file: wading_survey.pdf) gepprobeTechLaw-040.jpg gepprobeTechLaw-077.jpg