

Continuing Education for Water Operators



Mariana Islands
Water Operator Association

August 8, 2012
Lao Lao Bay Golf Resort , Saipan

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Today's Agenda

- About Continuing Education
- Current Events
 - Low Water Crossings
 - GUDI Study for CUC water systems
- Main Events – IWDS
- Main Events – MBR
 - WEF webcast MBR basics
 - Managaha MBR
 - Lao Lao Bay Golf Resort MBR
 - Palau Melekiok MBR

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Continuing Education for Water Operators



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Is THIS training required?

➤ NO

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Why have continuing education?

- DEQ Regulations require certified operators to have 10 contact hours of continuing education per year (30 contact hours in 3 years) to maintain certification.
- DEQ is not required to offer training (and no longer offers training – no \$\$\$)
- Where would operators get training?

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Other training options

- Professional training provided by your employer (safety, pump maintenance, lab procedures, etc.)
- College classes
- Conferences or workshops by professional organizations or agencies
- Correspondence courses
- On-line opportunities

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NOT continuing education

- Meetings with DEQ or EPA
- Surveys or inspections by DEQ or EPA
- Reading journal articles or textbooks by yourself
- Googling water operator stuff on the internet

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When should training be offered?

- DEQ surveyed all certified operators
- Results
 - One 3 hour session every 3 months
 - In morning
 - On a Wednesday
- First session September 6, 2006

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2006 – 2008 (DEQ)

- September 6, 2006: Chlorination
- November 8, 2006: Using a Pump Curve
- February 7, 2007: Cross Connection
- May 9, 2007: Regulations - CCR, PNR
- August 8, 2007: Sizing Pressure Tanks
- November 26, 2007: PWS workshop
- February 20, 2008: Fluoridation
- May 2008: Process Controls (Robert Brokate)
- August 2008: Slow Sand Filters
- November 12, 2008: TCR and Control Valves

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2009 MIWOA

- March 25, 2009: Security and Filters
- May 13, 2009: Alt. Energy, CCR, Compliance
- August 5, 2009: Geology of Saipan, GWR
- October 9, 2009: GWR Workshop
- December 2, 2009: Valves, Spills, Walkerton

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2010 MIWOA

- February 3, 2010: Safety, Haz Materials
- May 5, 2010: BEH & DEQ, Cross Connections
- August 11, 2010: Waste Water Collection/Treatment
- November 3, 2010: Response to disease outbreak

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2011 MIWOA

- February 2011: Chemical Injection Pumps (HRWA)
- May 2011: Radiation, Radionuclide Rule
- July 2011: Utility Policies & Procedures; Standard Operating Procedures (HRWA)
- November 2011: Leak detection

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2012 MIWOA

- February 2012: Bottled Water; Reverse Osmosis; Bottle Sanitation
- May 2, 2012: Inspecting Tanks, Water Meters
- August 8, 2012: Wastewater membrane filtration (Lau Lau Golf Hotel)
- November 2012: Metering and measuring flow

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THIS TRAINING IS FOR YOU!

We'll do what we can to make it
what YOU want it to be!

Mariana Islands
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Suggestions for training

- Possible topics for upcoming sessions:
 - Backflow prevention device testing
 - Rainwater
 - Local Water System
 - How Reverse Osmosis Works
 - Energy efficiency
 - Storm water and erosion control
 - Introduction to waste water treatment
 - Field trip
 - Cleaning and handling bottles
 - Leak detection

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Announcements

- All certificates from the last 5 classes are posted on the website

www.MarianasOperators.org

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Current Events

August 2012

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Lau Lau Bay Drive

Low Water Crossings

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Erosion Control



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9/17/2011



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9/17/2011



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9/17/2011



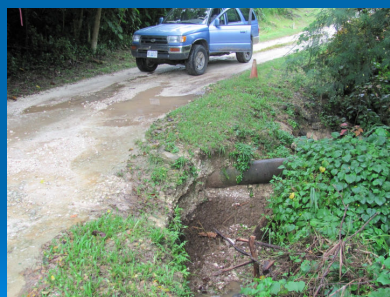
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8/18/2011



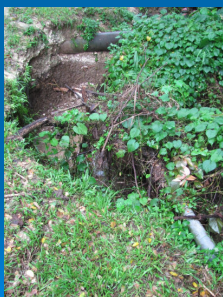
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8/18/2011



24

8/8/2011



25

8/2/2012



26

3/28/2012



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3/28/2012



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3/28/2012



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8/1/2012



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8/2/2012



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CUC Water Systems GWUDI Study

CAPT Derek Chambers, USPHS

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What is GWUDI

- Ground Water Under the Direct Influence (of Surface Water)

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Regulatory Definition

- Ground water under the direct influence of surface water (GWUDI) means any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*, or significant and relatively rapid shifts in water characteristics such as ...

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Regulatory Definition cont...

- ...turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface conditions. Direct influence must be determined for individual sources in accordance with criteria established by the State. ...

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Regulatory Definition cont...

- The State determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluations.

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Rota



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CUC Water

- Stipulated Order requires CUC to evaluate its source water for GWUDI determination
- Study protocol agreed upon between EPA, DEQ and CUC.

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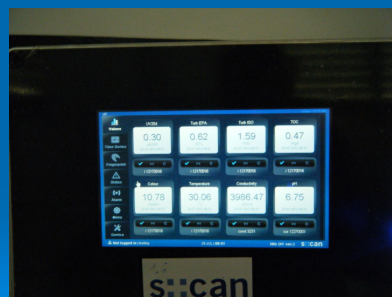
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Main Event

IWDS

Manny Borja, Env Engineer, DEQ

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Break - 10 minutes



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Main Event

Fundamentals of Membrane
Bioreactors: Process
Fundamentals

[Link to webcast \(1 hour\)](#)

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Break -10 minutes



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Main Event

Managaha MBR

Ray Roquelara, Pacific Daiken

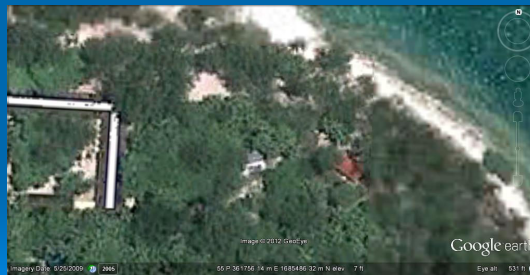
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Managaha



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MBR Location



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Cylindrical Tank



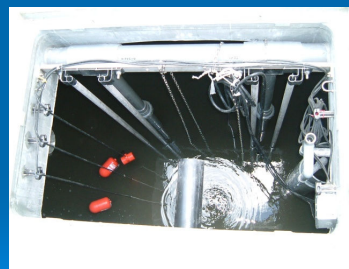
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Cylindrical Tank



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Flow Equalization/Denitrification



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Submerged Screen



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Nitrification Tank



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Membranes



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Sludge Tank



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Machine Room / Suction Pump



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Machine Room Blower

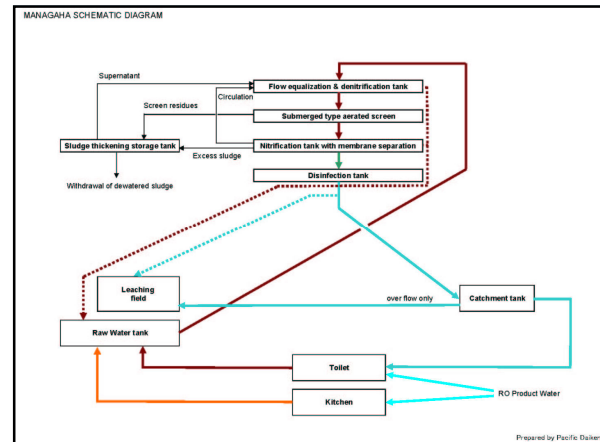


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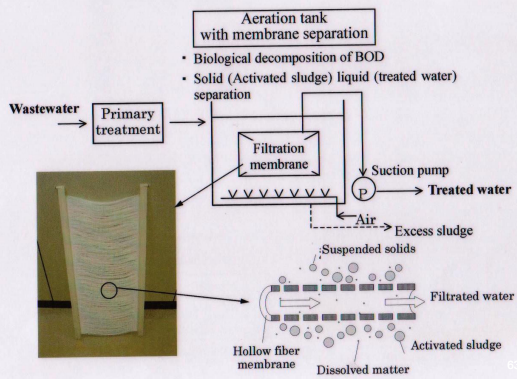
Disinfection Tank



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Submerged membrane separation activated sludge process



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Main Event

Lao Lao Bay Golf Resort MBR

Ruel Magtales, LLBGR

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Association Business

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Board Member Terms

- Chair: Derek Chambers – May 2013
- Vice chair: Bernard Keremius – May 2013
- Secretary: Mariano Iglecias – May 2014
- Treas: Cecilio Raiukiulipiy – May 2015

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