Part 1. Industry Perspectives. Experiences of a travelling scientist

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Presented by

Neil Beckingham

QED Environmental Solutions (Florida) LLC
Who is Neil Beckingham?

Education & Professional Affiliations

• Bachelor of Science with Honors (Geology/Chemistry)

• Graduate Diploma of Environmental Science

• Master in Arts – Policy (Ecological Sustainable Development)

• American Water Association (Corporate Member)
• Australian Institute of Mining and Metallurgy (Member)
• Australian Water Association (Corporate Member)
Who is Neil Beckingham?

- Feb 2003 to current, Vice President, QED Environmental Solutions (Florida), LLC
- Apr 2001 to Jan 2003, General Manager, Technology, Research & Development, QED Occtech Limited
- Dec 1998 to May 2001, Coordinator of Industrial Projects, ATA Environmental
- Jun 1996 to Dec 1997, Senior Environmental Scientist, Alan Tingay & Associates
- Feb 1994 to May 1996, Chief Geologist, MineMap Pty Ltd
- Feb 1992 to Dec 1993, Geologist, Hamersley Iron Pty Ltd, Tom Price
- Nov 1991 to Feb 1992, Geologist, Plutonic Exploration (contract)
- Nov 1990 to Feb 1991, Geologist, Western Mining Corporation (contract)
Lessons Learnt

• Science is an excellent background for logical thought required for Management.

• BUT also worth exploring “softer” subjects like Policy, Law, Business, ethics (philosophy) - all powerful combinations

• International work is there for the taking – same issues around the planet. Well worth the experience (France, Chile, Japan, SE Asia, Aust, UK)

• Don’t be afraid to specialize or generalize

• Put effort into relationships, not always about how much you know but more who you know!

• Take time (plenty) to smell the roses

• If you’re going to do a Masters don’t, do a PhD.
Who is QED Occtech?

- Supplier of world class Waste Water Treatment Solutions
- Focus on water re-use in agricultural, mining, food & beverage, industrial and municipal sectors
- Current business activities in Australia, USA, Japan & Asia
- Driven by cleaner production and commercial benefits
- Every waste is potentially a valuable resource looking for a use.
QED Tangential Flow Separator – A Reaction Clarifier

• Summation of many simple proven aspects of improving clarification and all these aspects have culminated in the QTFS.

• Designed to provide just the right amount of mixing energy for particle to particle contact to facilitate mixing and floc.

• Sides have steep repose not possible in traditional clarifiers

• Natural circular motion tends to move solids to centre, where there is the settling (trap) space [a larger volume that causes loss of momentum and solids to settle] and start to compact. Compaction is a function of the height of solids and we have (about) up to a metre.

• Base is designed for easy access if plugs.
Benefits of QTFS

• Less contact time required for floc and settleings, smaller volume, smaller physical size

• Not prone to thermal upsets

• No scrapers or mechanical devices

• All in one design for physical or chemical reaction and clarification

• Higher solids density

• Smaller foot print and possibility to relocated, viz the pilot model.

• Minimize Chemical Costs

• Can be incorporated in larger systems (eg anaerobic digester)
QED Tangential Flow Separator

- Floaters Outlet
- Raw Inlet
- Treated Water
- Secondary Treatment
- Water Stabilization Pond
- Thickened Sludge Outlet (6% solids)
- Sludge Pump
- Sludge to Sludge Thickening Tank

Waste Water Solutions
McArthur Farm – Intensive Dairy Farming
Okeechobee - FLORIDA
Arial View of QTFS at McArthur Farms
Process flow Diagram - current

Dairy Sheds → Screw Press → Sand Separator → Balance Tank # 1

QTFS → Chemical Dosing → Balance Tank # 2 → Grit Separator

Solids for reuse → Lagoon

Waste Water Solutions
Wandalup Farms, West Australia

INTENSIVE ANIMAL FARMING - WWTP

Waste Water Solutions
Corbett Farms (Hogs) – Smithfield Foods Inc
NORTH CAROLINA, USA, 10M³ HOUR (WWTP)
Fuso Farms, Japan

INTENSIVE ANIMAL FARMING - WWTP

Waste Water Solutions
Industrial Projects

World’s first plant to recover cyanide for Australian Gold Refineries
Industrial Projects

Test Plant for removal of contaminants from acidic Wastewater – Tampa, Florida

Waste Water Solutions
Industrial Projects

Membrane plant to remove arsenic, cyanide, dioxins & radionuclides for BHP Billiton.
Industrial Projects

World’s first plant to recover radionuclides from nuclear reactor scrubber wastewater
ANSTO (Australian Nuclear Science & Technology Organization)
Innovative Wastewater Solutions

www.qedocctech.com
Moo !