

# P PONTON

INDUSTRIES, INC.

Exclusive Representatives for:



**INSTRUMENTATION**



**MAGNETIC FLOW METERS**



**CLAMP-ON FLOW METERS**



**ULTRASONIC LEVEL**

**MARSH  
McBIRNEY**

**SIGMA**



**COLLECTION SYSTEM  
FLOW MONITORS &  
AUTO SAMPLERS**

**CLEARWATER  
CONTROLS**

**DERAGGER II**  
ELIMINATING PUMP BLOCKAGES



**VARIABLE FREQUENCY DRIVES  
WE CAN PROVIDE SERVICE FOR  
ANY  
VFD MANUFACTURER**

**THE SOLUTION IS CLEAR**

An underwater photograph showing the surface of the water at the top, with numerous bubbles rising from below. The water is clear and blue.

Clearwater Controls  
Deragger II – Anti Ragging Device  
Power Efficiency Enhancement

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# Agenda

- Current Industry Situation
- Deragger II The product
- Deragger II Technical Specification
- Western Ave Pumping Station
- Power Savings
- Questions

# Current Industry Situation

Associated Press Article: Sept 2013

- Wet Wipe industry in the US is a \$6 billion-a-year industry
- This is increasing nearly 5 percent a year since 2007 and expected to grow at a rate of 6 percent annually for the next five years.
- This cost the water utilities Millions on inefficient Pumping

# Current Industry Situation

- Traditionally, lift and manually unblock pumps
  - Reactive response, not always at the most convenient time of day!
  - High risk of pollution from SSO
  - Significant Increase in Power Consumption
- Typical blockage



# Deragger II

## The Solution



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# Deragger II

- Anti-ragging electronic pump control device
- In Line, Delta/Wye, VFD's & Soft Start
- Retrofit into existing control panels
- Provides standard pump protection
- Payback period as short as a few weeks!
- 0 – 1000A rated

# Deragger II

- Full 3 phase power analyzer
- Designed for Fixed And Variable Speed
- Small footprint 1.4"x 4"x 4.5"
- No new enclosures to add
- User programmable functionality
- Installation requires minimal interruption to the lift station
- UL Approved



# Technical Specification


- 3 x Digital inputs (24Vac/dc or 110-230Vac)
- 4 x Relay outputs (Examples: Forward or Run, Reverse, Fault, Alarm or Star/Delta Changeover)
- 1 x SSR output (Examples: kW/Hr. pulse, Soft Start Run/Stop or Clean in Progress)
  - 2 x Analog inputs (Flow, Level)
  - Comms: ModbusRTU, Profibus DP\*
  - Supply Voltage:110-230Vac

# LED Error Indications

Di1	Di2	Di3	Action	Description
0	1	0	Flashing	Analog Input Monitor Trip
0	1	1	Flashing	Application Monitor Trip
1	1	0	Flashing	External Trip (Digital Input or Comms)
1	0	1	Flashing	Device Internal Fault Trip
1	0	0	Flashing	Comms Timeout
0	0	1	Flashing	Motor Supply Monitor Trip
1	1	1	Flashing	Motor Overload Monitor Trip

# Fault Codes

Code	Description	Possible Cause
0	SYSTEM POWER UP EVENT	Power fail or dip
1	SYSTEM RESET EVENT	System has automatically reset itself
0x4002	CURRENT IMBALANCE ALARM	Windings failing on motor
0x4004	FREQUENCY ALARM	Frequency out of tolerance
0x4009	OVERCURRENT ALARM	Possible short circuit
0x4008	OVERVOLTAGE ALARM	Supply voltage too high
0x400C	PHASE LOSS ALARM	One of the phases to the motor is gone
0x400E	UNDERCURRENT ALARM	Low current to motor
0x400F	UNDERVOLTAGE ALARM	Low voltage to motor
0x8000	ANTI RAGGING TRIP	Too many clean cycles have been attempted
0x8002	CURRENT IMBALANCE TRIP	Imbalance in current to motor check windings
0x8003	DRY WELL TRIP	Too many dry well inhibit events check levels
0x8004	FREQUENCY TRIP	Frequency out of tolerance
0x8005	HARDWARE ERROR TRIP	Problem with the Deragger try powering off
0x8006	INPUT REAL TRIP	External trip
0x8007	INPUT VIRTUAL TRIP	Trip from Modbus
0x8008	MODBUS TIMEOUT TRIP	Comms timeout
0x8009	OVERCURRENT TRIP	Possible short circuit
0x800A	OVERLOAD TRIP	Motor has overloaded
0x800B	OVERVOLTAGE TRIP	High voltage to the motor
0x800C	PHASE LOSS TRIP	One of the phases to the motor is gone
0x800D	SOFTWARE ERROR TRIP	A Firmware error has occurred please reset device
0x800E	UNDERCURRENT TRIP	Low current draw by motor
0x800F	UNDERVOLTAGE TRIP	Low voltage to motor
0xFFFF	RESERVED	RESERVED

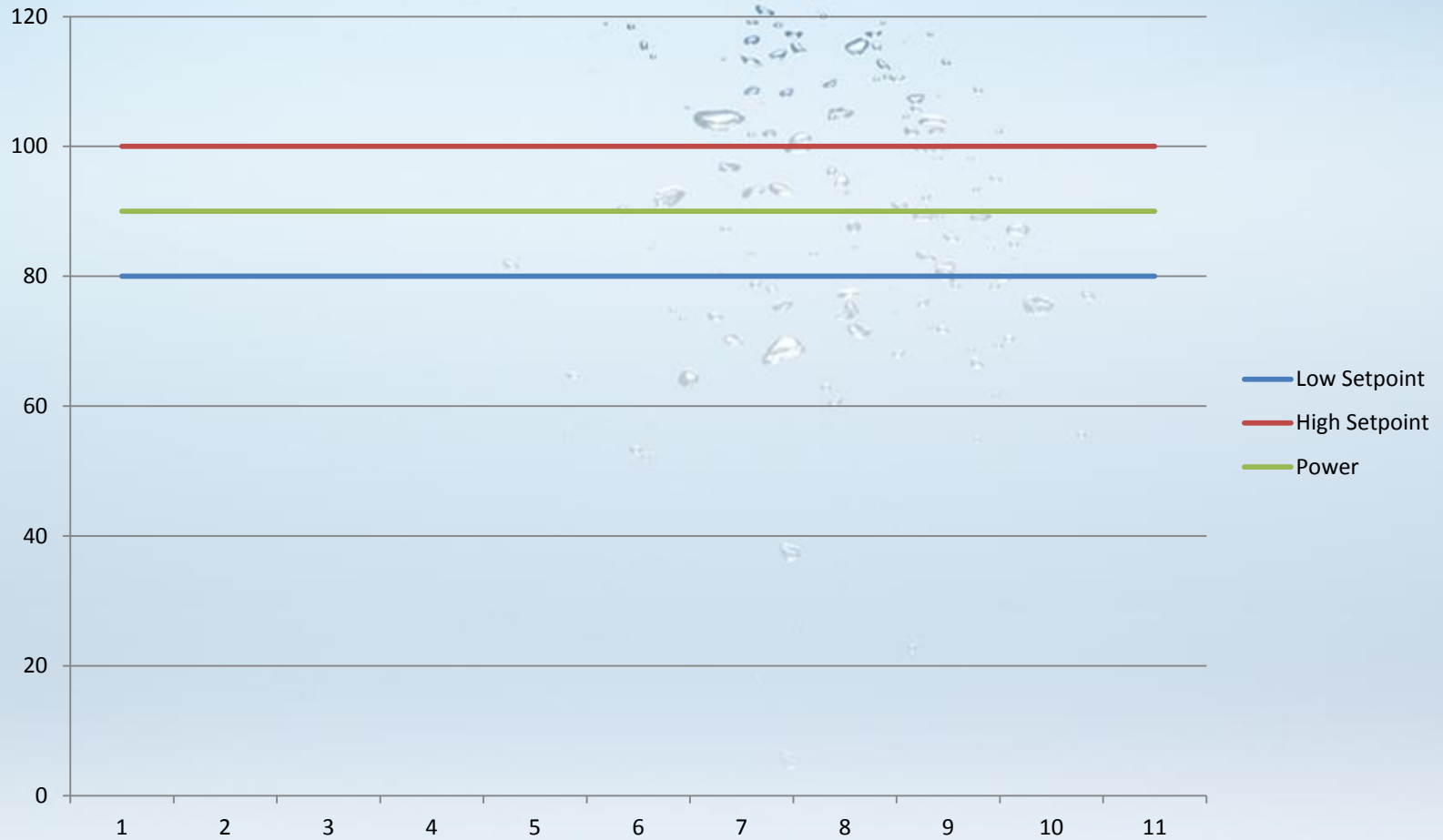


How does it  
work?

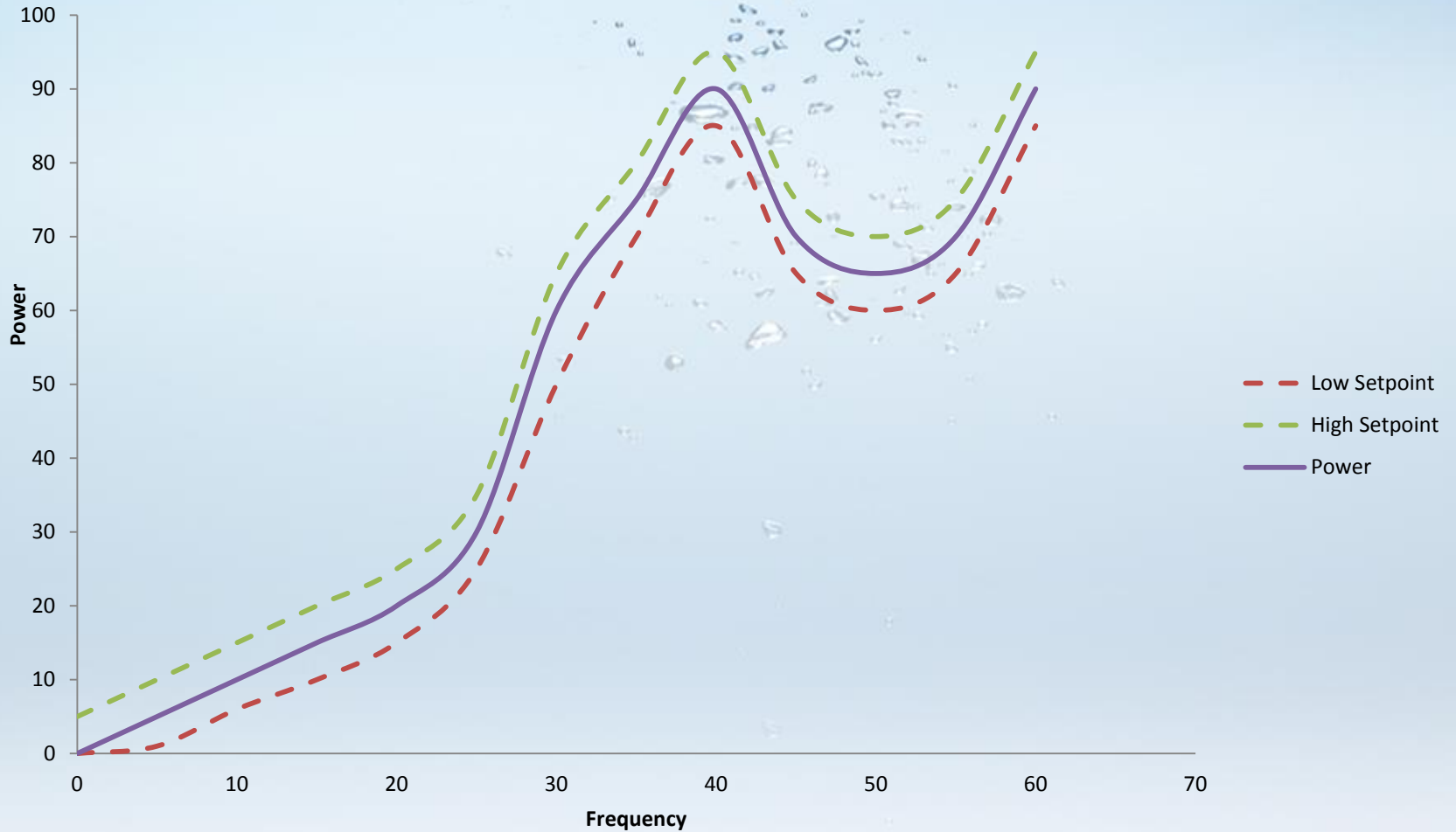
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# Static Set Point



# Dynamic Set Point



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# Typical Results

Clean impeller after 2 months of Deragger operation



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# Western Ave

- 2 x 50HP VFD Driven Pumps
- Manually lifted pumps weekly
- 2 x Deragger II's installed
- No Manual Cleans since November 2013
- Average of 1 Automatic Clean Per Day





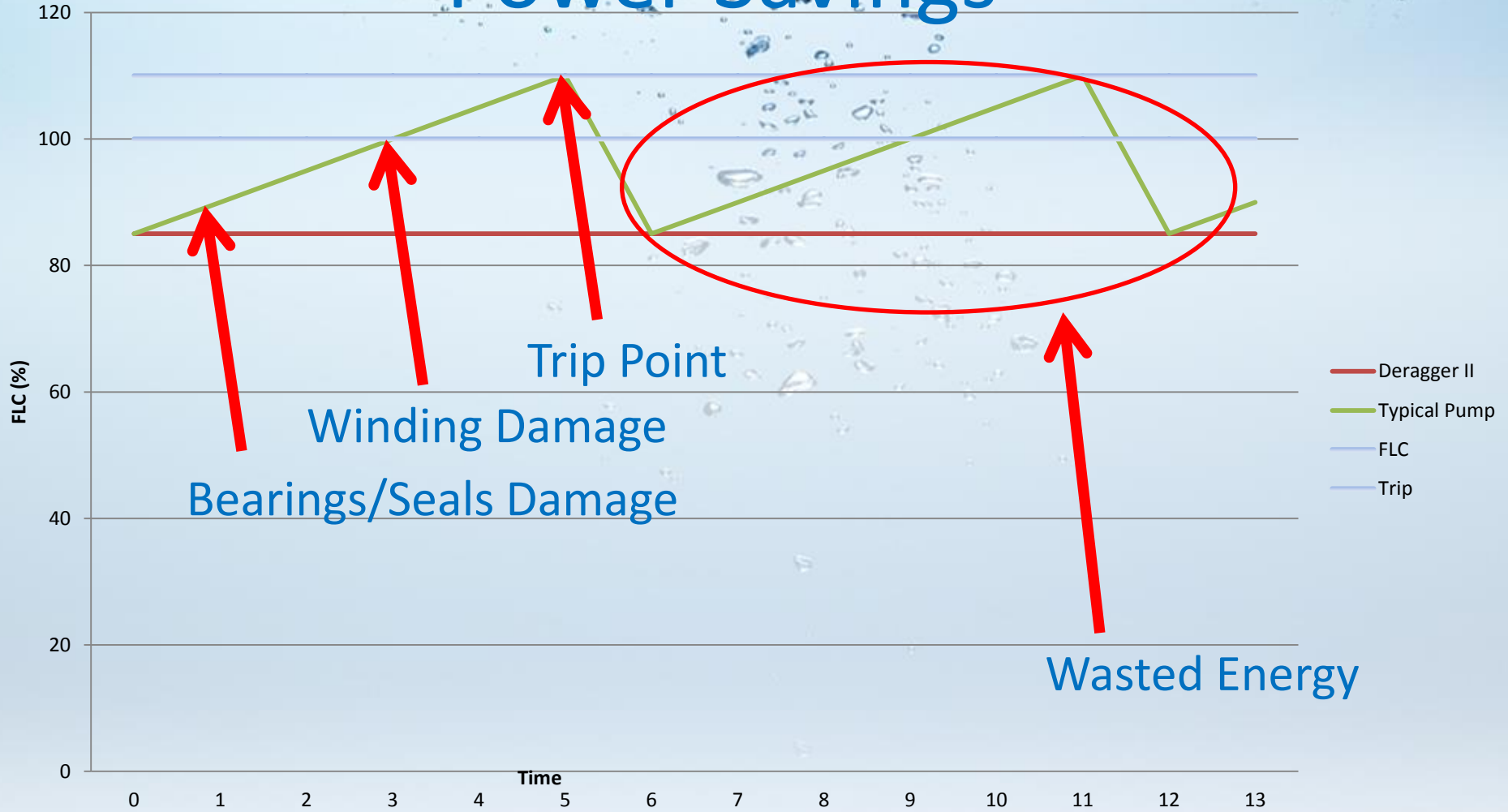
# Western Ave

- Pre Deragger Installation Running Current 55A
- Post Running Current 52A
- Reduction of 5.4% Running Current

# Power Savings

- Trial Site Anglian Water UK
  - Increased Flow Rates By 27%
  - Reduced Pump Run Time By 67%
  - Reduced Inrush Current By 22.4%
  - Increase In Overall Electrical Savings By 52%

# Power Savings



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# Summary

- Worldwide Waste Water Industry Problem
  - Patented Low Cost Retrofit Solution
  - 3 Years + Live Site Test Without Failure
    - 2 Year Warranty
- Improves pumping performance by up to 52%

An underwater photograph showing the surface of the water at the top, with numerous bubbles and ripples. The water is clear and blue, and the bubbles are scattered throughout the frame, creating a sense of depth and movement.

# Questions

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