Recycled Water Solutions

Anita Matlock
Area Sustainability Manager

The Intelligent Use of Water.™
Increasing regulation

- New Green Codes requiring use of non-potable and/or recycled water
- Stronger regulation in particular markets
  - US: California, Florida, Texas, Arizona
  - Worldwide: Australia, Israel, Spain
- Anticipate similar levels of regulation across the US
Challenges of non-potable water

- High in chlorine
- Filtration
- High salt content
- Seasonal fluctuations
- Water pressure
Non Potable Irrigation Equipment (Past)

- Purple identification
Legoland in 1998

- LEGOLAND in Carlsbad, CA under construction in 1998
- Rain Bird and other manufacturer’s products were failing
- Determined recycled water with higher chlorine content
- Resigned rubber components to meet these site challenges
Valves

- EPDM diaphragm material is reliable in recycled water conditions, due to EPDM being chlorine and chemical resistant

http://www.rainbird.com/landscape/products/valves/htm
Legoland 2009-2011

- They had a history of spray heads failing due to the high chlorine content so LEGOLAND helped with our RD 1800 development
- They have been using the RD1800 since early 2011 and have had zero issues with their spray heads
- The site report is available in a short and long version on the RD1800 product page
RD1800?

- An evolved spray head developed using modern technology to meet customer requirements for increasingly harsh applications.

1. Appearance / aesthetics
2. Cover
3. Wiper seal and stem
4. Flow-Shield™ Technology
5. Debris resistant ratchet ring
6. Body
7. Materials and components
COVER

- Patent Pending Unique Non-Potable Identification
  - No clunky clip-on covers
  - No purple ABS that reduces UV protecting carbon black content and gives away sprinkler location

- Stronger Material
  - Withstands operation range up to 100 psi

- New Look
  - “RD1800” – BOLD LETTERING
  - Four bumper design vs. eight dot design

RD1800 Standard Cover
RD1800 Non-Potable Cover
1800 Series Cover
Bring on the Dirt

Triple Coverage

Nearly three decades ago, the Rain Bird® 1800® Series and its co-molded wiper seal changed irrigation technology forever. With the RD1800, we’ve done it again with a precisely engineered, exclusive Triple-Blade Wiper Seal.

The RD1800’s Top Seal flushes during pop-up and wipes the stem clean during retraction, preventing external debris from entering. During operation, the RD1800’s Primary Seal combines with the stem’s surface to eliminate flow-by. The exclusive Third Blade provides another line of defense, in case the primary seal is damaged.
RATCHET RING

Racheting Up Reliability

The RD1800’s ratchet mechanism was designed to easily adjust during installation, hold steady over time, provide greater debris resistance and be more flexible. While competitive rings become brittle, the RD1800 ratchet ring does not crumble when exposed to stress.
FLOW-SHIELD™ TECHNOLOGY

Exclusive Flow-Shield™ Technology

Exclusive Flow-Shield™ Technology provides up to 90% reduction in water loss when a nozzle is removed, preventing potentially costly and unacceptable run-off.

Exclusive Patent-Pending Design

- Low-flow service indication stream
- Install nozzles while operating
Eliminate Low Head Drainage

Built-in SAM check valve saves water and prevents erosion from low-head drainage

Low head without SAM wastes water
Pressure Regulating Stem

- PRS ensures optimal nozzle performance in high pressure systems - reduces water usage by 6-8% every 5 psi.
- Optimal performance means larger water droplets so less chance of blowing away.
RWS Root Watering System

Irrigates tree/shrub at its roots promoting deep root growth and provides aeration

- Eliminate run-off & surface roots
Need Pumps and Filtration?

- Rain Bird manufacturers custom pumps and filtration systems*
- Up to 10,000 GPM (14.4 MG per Day)
- From 3/4hp up to 150hp**
- Integrated skid design
- SCADA capable & compatible

*For Irrigation Systems & Transfer Pumps
** Consult with factory for larger hp
Pump Stations – Product Line

NEW
Pump Start Relay

NEW
Light Commercial (LC)

Low Profile (LP)

D Series

Intermediate Flow

Large Commercial
Rain Bird Water Harvesting
SUSTAINABLE IRRIGATION SOLUTION
RAIN WATER HARVESTING SYSTEM FOR COMMERCIAL APPLICATIONS

Three 7,500 Gallon Polyethylene Above Ground Storage Tanks (22,500 Gallon Combined Capacity)

50GPM @ 50PSI Rain Bird Water Harvesting Treatment And Control System

Water Harvesting System With Above Ground Tank

Roof Mounted Gutter System To Collect Rain Water

Harvested Water Irrigation On Turf Areas And Drip Zones With Rain Bird Irrigation Systems

Rain Bird Drip Irrigation System

Rain Bird Rotor Irrigation System
HVAC CONDENSATE HARVESTING SYSTEM FOR COMMERCIAL APPLICATIONS

Condensate Collection Pipe To Connect HVAC Systems To Water Storage Tank

Above Ground 8000 Gallon Corrugated Steel Storage Tank

25GPM @ 50PSI Rain Bird Water Harvesting Treatment And Control System

Water Harvesting System With Above Ground Tank

Four Roof Mounted HVAC Heating and Cooling Systems

Four Roof Mounted HVAC Heating and Cooling Systems

Harvested Water Irrigation On Park Ways And Drip Areas With Rain Bird Irrigation Systems

Rain Bird Drip Irrigation System

Rain Bird Spray Irrigation System
Support

Technical expertise
- Irrigation
- Industrial

Training
- Lunch and Learn/Brown Bags including CEU credits
- Webinars
- Classes

Commitment to the Intelligent Use of Water
Take Advantage of Local Rebates from Water Agencies
Landscape Rebates

www.socalwatersmart.com

Select the applicable rebate program below.

SoCal WaterSmart
For Residential Customers

SoCal WaterSmart
For Commercial Customers

Feed Entries
Water Savings Incentive Program

- “Pay for performance”

- **Goals**
  - Encourage custom projects that can provide long-term water savings
  - Landscape as well as CII projects
  - Encourage water management as a standard business practice
Thank You

Contact Information:
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Water Use Efficiency at Home and the Office
The Big 3: Sprinkler Performance Conversion to Drip Smart, Weather-Based Based Controllers
Sprinkler Performance
Features in the body and nozzle performance in real world
Eliminate Low Head Drainage

Built-in SAM check valve saves water and prevents erosion from low-head drainage

Low head without SAM wastes water
Pressure Regulating Stem

- PRS ensures optimal nozzle performance in high pressure systems - reduces water usage by 6-8% every 5 psi.
- Optimal performance means larger water droplets so less chance of blowing away.
Rain Bird HE-VAN
Key Features and Benefits

- **Larger droplet size:**
  - The droplets are visible larger and more defined than traditional spray nozzles.

- **Lower trajectory:**
  - The HE-VAN-15 has a trajectory that is more than 15% lower than other nozzles

**Benefit:**
Greater wind resistance.
Performance:
Using Water Conserving Fixed-Spray Nozzles

Traditional Nozzle Coverage

U-Series gives even coverage
Benefits for Designers/Specifiers: The Intelligent Use of Water™

- **Reduce run-off and erosion**
  - Low precipitation rate of 0.6 in/hr

- **Excellent uniformity**
  - Multiple rotating streams deliver close-in watering and even coverage throughout the radius range.

- **Unsurpassed design flexibility**
  - Expanded radius and matched precipitation rate across radii and patterns. Can also be zoned with 5000 Series MPR Nozzles.
NEW: 5000 Plus w/ Pressure Regulating Stem Option

- Saves water, time and money
  - Eliminates head to head pressure variation
  - Perfect 45 psi
  - Eliminates misting
  - Improves distribution uniformity

Rain Bird 5000 Plus with PRS
5000 Plus PRS –
Side by side comparison

Another rotor @ 75psi

5000 Plus PRS @ 75psi
Landscape Drip Irrigation
Why use Landscape Drip?

Drip irrigation products deliver water slowly, at low pressure, at or near the root zones of the landscape plant material.
Applications – Sparse Plantings

Sparse Plantings
- Medians
- Narrow planting beds
- High traffic areas
- Slopes

Point Source:
- Watering of specific plants
- Emitters (single and multiple outlet)
- PC Modules / Bubblers
Applications – Dense Plantings

Dense Plantings

- Narrow planting beds
- Medians
- Slopes

Total Coverage/Broadcast:

- 100% Coverage is required
- Micro-Sprays
- XF Dripline
Rain Bird Drip Irrigation Product Overview

Control Zone Components

Distribution Components

Emission Devices

Tools
Two sprayheads

(1) 1800 per 0.76 square feet
Remove the sprayhead

Attach the fitting & tubing

Cap off the remaining sprayheads
Introduction to Smart Controllers

In the beginning...We watered our yards...
Evapotranspiration (ET)

- Evaporation of water from the soil or plants surfaces and transpired from leaves.
  - It is typically measured in inches

- Weather conditions affect ET:
  - Rainfall
  - Solar radiation
  - Temperature
  - Wind
  - Humidity
Option 1- Residential/ Light Commercial
ESP-SMT Smart Controller (a simple/on-site approach)

- On-site Weather Stationing (2 factors of ET: temp and rain measured LIVE). 13 stations
- 3 factors of historical data programmed into the clock reference by zip code and date: solar radiation, wind speed and humidity
- Zone by zone site specific inputs to calculate Actual ET for your site (slope, shade factor, soil type, plant type, density, root depth, sprinkler type, “thirstiness”) 
- Factors in watering restrictions (allowable watering days and times)

Therefore this controller calculates the irrigation schedule for you, without user guess work as is traditional time based controllers
Option 2: ETC-LX ET Manager™ Upgrade Kit for ESP-LXME and ESP-LXD
IQ™ v2.0 Central Control System
(for ESP-LXME or ESP-LXD)
Take Advantage of Local Rebates from Water Agencies
Example: MWD Rebates

- Rebates for irrigation equipment, turf removal
- Water Savings Incentive Program for customized projects
Landscape Rebates

www.socalwatersmart.com

Select the applicable rebate program below.

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For More Information

- **Questions:**
  Carolyn Schaffer, Program Manager  
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- **Info on MWD’s service area**
  www.mwdh2o.com/mwdh2o/pages/memberag/member02.html

- **MWD’s conservation website**
  www.bewaterwise.com
Thank You

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