



**LEGOLAND**  
Carlsbad, CA



Site Report

### PROPERTY:

LEGOLAND, a 128-acre theme park located in Carlsbad, CA

### LANDSCAPING SUPERVISOR:

Christophe Bruchez

### RAIN BIRD PRODUCTS USED:

- RD1800™ Series Spray Head
- U-Series Nozzles
- PESB-R Series Valves
- Maxicom2® Central Control
- WS-PRO2 Weather Station
- Black Stripe Tubing

### RAIN BIRD QUICK FACTS:

#### RD1800 SERIES SPRAY HEAD

##### ADVANTAGES:

- Wiper seal and ratchet ring made out of chlorine- and chemical-resistant materials for long-lasting performance using reclaimed water.
- Debris pockets at the base of the spray trap dirt, sand and particles, preventing wear and tear on spray during operation.
- Low-flow service indication stream sends a stream of water in the air to indicate when nozzle has been removed, but preserves water pressure for the rest of the sprays on the line.

#### PESB-R SERIES VALVE ADVANTAGES:

- Diaphragm made of chlorine- and chemical-resistant material for long-lasting performance using reclaimed water.
- Scrubber mechanism cleans filter and keeps pilot flow clear from build up of algae, debris and other particles with can clog valve.

#### MAXICOM2® CENTRAL CONTROL

##### ADVANTAGES:

- Manage multiple watering schedules for field controllers using central computer.
- WS-PRO2 Weather Station can be linked to system to collect daily weather conditions, so that water schedules can be adjusted automatically using the latest data.

### BENEFITS OF RECLAIMED WATER USE

When used wisely, reclaimed water offers the following benefits:

- Conservation of potable water resources.
- Decreased water-use expenses.
- Greater independence from natural water cycles.
- A positive community image for organizations willing to take on the challenges of reclaimed water use.
- Can reduce the need for fertilizers
- Watering restrictions sometimes do not apply to reclaimed water

Source: "Reclaimed Water: A Solution for Irrigating the World"

[http://www.rainbird.com/documents/turf/wp\\_RainBird\\_ReclaimedWater.pdf](http://www.rainbird.com/documents/turf/wp_RainBird_ReclaimedWater.pdf)

## Reclaimed Water, Tight Maintenance Schedules Are No Problem for LEGOLAND

Rain Bird products help solve reclaimed water problems and provide simplified irrigation system management.



LEGOLAND® located in Carlsbad, CA, is a 128-acre theme park open to more than 2.5 million visitors a year. Families from all over the world come to LEGOLAND to see towering animals built entirely out of LEGOS and visit 60 rides and attractions. Over 60-acres of the park is beautifully landscaped with native and non-native plants that set the stage for the unique themed areas of the park.

The challenge of keeping LEGOLAND's landscape in beautiful condition and the irrigation system operational falls to Chris Bruchez, LEGOLAND's Landscape Supervisor, and his three-person team. They have a four-hour window in the morning before the guests arrive to make sure the irrigation system is running smoothly. In addition, 90% of the landscaped areas are irrigated with reclaimed water from the City of Carlsbad. While the use of reclaimed water for landscaping reduces the overall potable water consumption of the theme park, the chemicals found in reclaimed water can be damaging to plastic irrigation components, which made frequent, time-consuming, and costly change-outs a problem – until Mr. Bruchez installed Rain Bird PESB-R Series Valves and the new RD1800 Spray Heads, both specifically designed to perform reliably using reclaimed water.

### RECLAIMED WATER USE IS ON THE RISE

Every gallon of reclaimed water used is a gallon of drinking or potable water saved. Reclaimed water, sometimes called recycled water, is wastewater from homes and businesses, which has been processed to remove solids and treated with chlorine and other chemicals to make it safe to use. Reclaimed water can be used in many different applications, such as power generation, industrial cooling, street sweeping, aquifer recharge, and of course, irrigation.

California, Florida, Texas, Arizona, and other states facing drought conditions, declining river flow rates and increasing populations have turned to reclaimed water to irrigate city parks, golf courses, sports fields, and commercial and residential landscaping. As an example, the City of Carlsbad, which supplies LEGOLAND with reclaimed water, currently supplies 1.23 billion gallons of reclaimed water to more than 500 sites.

In addition, green building programs like LEED (Leadership in Energy and Environmental Design) and the IGCC (International Green Construction Code), require reducing or eliminating the use of potable water for landscaping for commercial properties. One way to achieve this reduction in potable water is to use reclaimed water, harvested rainwater, or gray water instead.

### CHALLENGES OF RECLAIMED WATER USE

While the primary benefit of using reclaimed water is clear, in practice reclaimed water can create some unique challenges for landscape and irrigation professionals who are charged with maintaining the irrigation system and the plant material. To start, there are no strict water quality regulations, only guidelines. Chlorine is often added to disinfect the water, and the levels of chlorine can vary by location, and from day to day and even within the day. Chlorine degrades plastic irrigation

components, eating away at wiper seals on sprays and valve diaphragms, causing frequent replacement of these parts. Irrigation professionals who manage irrigation systems using reclaimed water face increased system costs and maintenance time because they have to change out individual components more often.

## RD1800 SPRAY HEAD OFFERS TWO KEY ADVANTAGES FOR LEGOLAND

Mr. Bruchez changed out 10 to 15 sprays in the summer, and 2 to 3 in the winter because the wiper seal and ratchet rings of the sprays were deteriorating due to the high chlorine content in the reclaimed water, plus kids at the park are known to dismantle the sprays while standing in the lines at the park. While the RD1800 can't help with the kid factor, it did help reduce the amount of change-outs needed because of the reclaimed water.

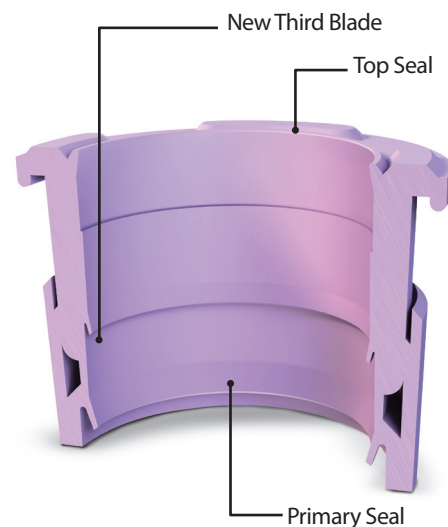
LEGOLAND uses over 11,000 sprays on the property and Mr. Bruchez has a short window in the morning to make sure the system is running properly. So, when Rain Bird asked Mr. Bruchez to test drive a new spray that could withstand chlorine, he was willing to change out more than 200 sprays to see how well they performed.

The RD1800 is the only spray on the market today that is specifically designed to handle reclaimed and dirty water. The RD1800 wiper seal has an added third ring to ensure a reliable seal if the primary seal is damaged. The wiper seal is made out of monprene, which is commonly used in pool liners and other products to prevent degradation. In SAM models of the RD1800, the SAM seal is made out of EPDM (Ethylene Propylene Diene Monomer). EPDM is a highly durable material, which is chlorine- and chemical-resistant. Also, specially designed debris pockets at the base of the spray trap sand and dirt, so that these particles do not recirculate when the spray is operating reducing wear and tear on the spray. A reinforced ratchet mechanism on all RD1800 models allows easy nozzle pattern alignment without tools, and is also made out of chlorine- and chemical-resistant material. "The RD1800 is really in a class of its own, there is nothing else on the market like it. It can withstand reclaimed water, but it can also handle dirty water from water harvesting systems, or water from ponds or lakes," said Tom Kundrat, Rain Bird commercial sprays product manager.

Also, the RD1800 features Flow-Shield™ Technology,

which delivers a low-flow service indication stream when a nozzle is removed while also helping to reduce water loss by 90% by restricting the flow of water. This allows the irrigation technician to drive around the park in the morning and manually open the valves to spot problems with sprays. The service indication stream makes problems highly visible for irrigation technicians who don't have much time in the morning to provide system maintenance.

The sprays that were part of the field test have been in the ground at LEGOLAND since the spring of 2011. "I really liked the way the spray has performed during this time," Bruchez said. "Now it's just a matter of replacing 10,000 more sprays with RD1800s."

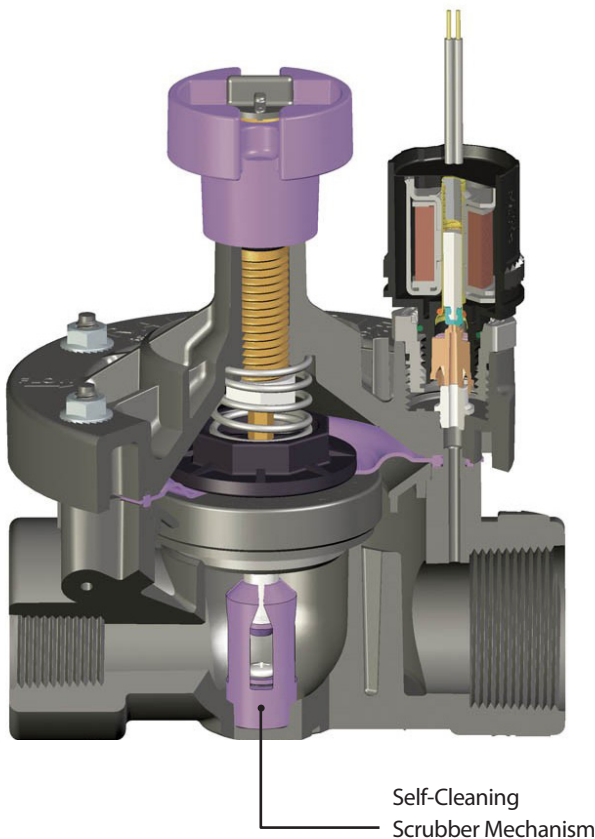


Debris Pockets

## PESB-R VALVE ELIMINATED DIAPHRAGM REPLACEMENTS

Mr. Bruchez was willing to conduct the field test for the RD1800 because he had incredible success with the PESB-R valve. LEGOLAND uses over 1,100 valves on the property. "Since we have changed out the valves (to the PESB-R) we haven't had to replace a valve diaphragm because it has been eaten away. Before the PESB-R we were changing out a diaphragm every month," said Mr. Bruchez. The PESB-R is a commercial valve for 1" (26/34), 1 1/2" (40/49) and 2" (50/60) sized pipes. It is made out of heavy-duty, glass-filled UV resistant nylon. The PESB-R's diaphragm is molded from chlorine- and chemical-resistant material.

An additional component of the PESB-R that helps clear debris and avoid clogging is the self-cleaning scrubber, which is also made out of chlorine- and chemical-resistant material. As the diaphragm moves up and down with the stainless steel filter in the assembly, the scrubber stays in place, and slightly vibrates back and forth which cleans the filter keeping the pilot flow clear of debris.



## CENTRAL CONTROLS OFFER OPERATIONAL EFFICIENCY FOR SMALL STAFF

The irrigation system for the park is controlled by a Maxicom2® Central Control system and provides an effective tool for a small staff to manage a large site like LEGOLAND. The Maxicom system allows Mr. Bruchez to control 27 satellite controllers in the field by linking them to four Cluster Control Units (CCU) and finally to a central computer where he and his staff can manage watering schedules and system flow, and view alarms that indicate problems that need immediate service.

In addition, the system is linked to an on-site WS-PRO2 Weather Station that collects daily rainfall, temperature, relative humidity, and wind direction and speed. The weather data is used by the central control system to update watering schedules. "The only way we could manage the park is through the computer. We focus on any alarms in the morning, so we solve any problems in the park quickly. And, the weather station ensures that we never under- or over-water based on the current conditions," said Mr. Bruchez.

## RAIN BIRD PROVIDES SOLUTIONS FOR LEGOLAND

The park has used Rain Bird products since 1999 and has been an early adopter of the expanded line of products specifically designed for reclaimed water. Like large parks across the county, LEGOLAND faced challenges of limited time and budget while managing the more demanding maintenance of a reclaimed water system.

The PESB-R valve and the RD1800 spray help Mr. Bruchez manage his team's time and budget more efficiently because they have eliminated changing out components due to reclaimed water damage and reduced repair of components due to dirty water conditions or nuisance damage. In addition to the using products designed to do the job, Mr. Bruchez is able to maximize operational efficiency of 128-acre site with automation provided by the Maxicom2® Central Control system combined with an on-site WS-PRO2 Weather Station. The results are a lush landscape enjoyed by visitors and reduced operating costs enjoyed by park management.

## The Intelligent Use of Water™

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At Rain Bird, we believe it is our responsibility to develop products and technologies that use water efficiently. Our commitment also extends to education, training and our communities.

The need to conserve water has never been greater. We want to do even more, and with your help, we can. Visit [www.rainbird.com](http://www.rainbird.com) for more information about The Intelligent Use of Water.™



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