

UOP 100 Years of Leading Innovations

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1914 - 2014 | A Century of Innovation
in the Oil and Gas Industry

Honeywell's Four Businesses



A Honeywell Company

**Performance Materials
And Technologies**

\$6.8B



Aerospace
\$12B



**Automation
& Control
Solutions**
\$16.6B

- 122,000 employees in more than 100 countries
- More than 19,000 engineers and scientists
- A Fortune 100 company



**Transportation
Systems**
\$3.8B



Diverse Businesses, Technologies and Products

Water at Honeywell

- **Honeywell UOP**
 - **Contaminant removal**
- **Honeywell Process Solutions**
 - **Sophisticated automation solutions to deliver savings**
 - **Water Distribution Networks**
 - ◆ Complex network of tanks, pumps, valves, and water sources move water from source to consumer
- **Honeywell Analytics Unit**
 - **Online pH/ORP Instrumentation**
 - **Dissolved Oxygen**
 - **Chart recorders**
- **Honeywell Field Solutions**
 - **Municipal Water Gas Monitoring**
- **Automated Control Systems**
 - **Industrial Control systems including wastewater and Municipal water**



Broad Experience with Water Systems

UOP IONSIV™ Selective Media at Fukushima



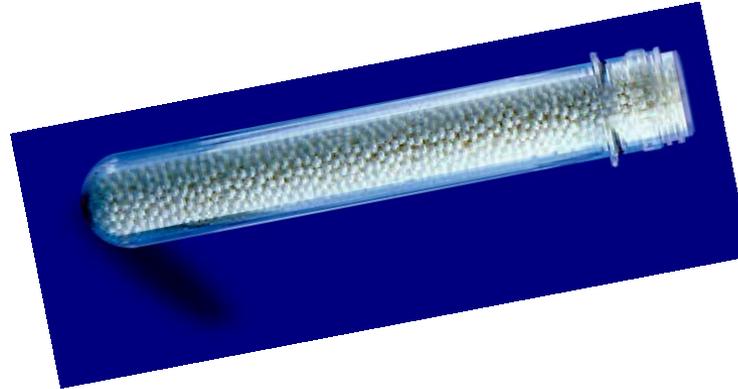
- Used successfully in SARRY™ system¹ since August, 2011 startup
 - Total of 667,000 M³ water treated²
 - Cs reduced to non-detectable level (DF > 500,000)
- Working with suppliers of four additional water treatment systems
- Used in Fukushima area in remediation activities

¹ SARRY system developed by Toshiba Corp., Shaw Global Services, LLC and AVANTech, Inc.

² Tokyo Electric Power Company, "Situation of Storage and Treatment of Accumulated Water including Highly Concentrated Radioactive Materials at Fukushima Daiichi Nuclear Power Station (136th Release)", February 5, 2014 < <http://www.tepco.co.jp/en/press/corp-com/release/index-e.html>>

- **Contaminant Removal with IONSIV™ Selective Media**

- Cesium
- Strontium
- Iodine



- **UOP Xceed™ Bioreactor**

- Established Honeywell Technology
- Over 15 years experience
- Broad applications
 - Organics/TOC
 - Heavy Metals
 - Denitrification



What Problems Should We be Trying to Solve???

UOP Research & Development

- UOP holds more than 2,700 active patents worldwide
- 1,600 Scientists & Engineers
- Extensive facilities
 - Pilot plants enable rapid scale-up & commercialization
 - Characterization & combinatorial chemistry tools for technology step changes
 - R&D centers
- Alliances & Collaboration



Extensive Technical Resources and Capabilities

Thank You !