GREEN STAR®

# ALASKA HOSPITALITY P2 SUCCESS STORY

UPDATED JUNE 2010

# DENALI PRINCESS WILDERNESS LODGE

## Lodge Saves Money and the Environment with Ozone Laundry System

**Turning to Ozone**

In 2007, after hearing about the projected savings from using ozone laundry systems, the Denali Princess Wilderness Lodge installed an ozone system at its Denali Princess Laundry in Healy, Alaska, and tracked all related costs. Like many companies that have switched to ozone laundry systems, Princess evaluated water and hot water savings, as well as savings from reduced wear on linens, chemical costs and labor. The Denali Princess Wilderness Lodge experienced significant savings on all fronts!

**Ozone Laundry Systems**

Ozone systems inject ozone into laundry water to activate detergents and enhance cleaning cycles. Ozone activates detergents to break down dirt without high water temperatures. It also kills bacteria and slightly opens the weave of fabrics to make linens softer to touch and easier to clean and dry. With ozone, the colder the water is, the better ozone works, making it an ideal system in Alaska where tap and well water can be as cold as 35ºF.

Ozone laundry systems are able to reduce the amount of hot water necessary to approximately 6-15% of the total water used. These systems also work with less water than conventional washes and thus can reduce overall water consumption. While ozone activates detergents during the wash cycle, it also cleans the water of detergents in effluent water.

Since ozone systems use lower water temperatures and reduce drying times, ozone systems are less harsh on fabrics, creating less lint in drying cycles and extending the life of linens by as much as double.

**Reducing Water Consumption**

Prior to installing the ozone system, the Denali Princess Wilderness Lodge was using approximately 1,818,600 gallons of water each year. In 2008, after installing the ozone system, water use dropped to an average of 1,531,400 gallons of water per year. That is a savings of 287,200 gallons or 15.8%.

Ozone is a process with diverse applications. It has been used for bottled water treatment, cleaning poultry plants, military laundry and cleaning space shuttle parachutes.

Princess estimates this water savings also saves the hotel about six bags of salt used for water softening every day. In the 123-day tested season, at $7 per bag, the hotel saved $816 on salt.

Also, due to the roughly 16% reduction in water use, the life of the hotel's leach field is extended. Replacing the leach field would cost Princess approximately $100,000. With the wastewater reduction associated with the ozone system, Princess estimates saving $16,000 in 2008 alone.

"We had absolutely amazing results.....and less than a one year ROI.

*-- David K. Soderlund, P.E.*
*Senior Manager - Facilities Development*
*Princess Tours - Alaska Hotel Properties, LLC*

**Reducing Energy Consumption**
While the Denali Princess Wilderness Lodge experienced savings from reducing water consumption, savings from the reduction in hot water use is even more significant. Detergents typically are activated by high water temperatures; however Ozone activates detergents in lower temperatures reducing the need for high temperature washes.

Prior to installing the ozone system, the Denali Princess Wilderness Lodge was using approximately 1,177,600 gallons of hot water annually. After installing the ozone system, hot water use dropped to approximately 411,100 gallons of hot water annually. That's a savings of 766,500 gallons of hot water per year or 65%!

Princess estimates that, at $4.20 per gallon of fuel oil, it saved $28,767 in water heating costs in 2008 alone.

With a capital cost of $53,390 for equipment and installation, the Denali Princess Wilderness Lodge experienced significant savings within the first season of installing its ozone laundry system.

A 200- to 300-room hotel can expect to recover its investment in ozone equipment in six to 12 months.

The table below shows the overall savings achieved by installing the ozone system. The calculations do not take into account savings in propane, electricity and mechanical equipment wear and tear, making actual savings much more.

**Additional Savings**
The combination of hot water, chlorine bleach, and the build-up of chemicals on fabrics can wear fabric over time. The natural bleaching effect of ozonated cold water preserves white fabrics and leaves color undamaged. This extends the life of fabrics, reducing costs related to storage, handling and cleaning.

Estimating one turn of linen saved per hotel room, with a three-year cycle of replacement, Princess saved $4,373 in 2008. Chemical comparisons from 2007 and 2008 resulted in a savings of $8,900!

Operations staff even calculated $19,666 in labor savings in 2008 after switching to ozone laundry systems.

More difficult to calculate is the savings in mechanical equipment. However, Princess is aware that its water well pumps, water treatment plant, water distribution pumps, hot water boilers, circulation pumps, heat exchangers, washers, dryers, piping, hoses, valves, fittings, and seals all work less with less water use, reducing wear and tear and, therefore, reducing costs.

**Key Players**

David Sunderland, P.E., Senior Manager Facilities Development, Princess Tours - Alaska Hotel Properties, LLC, (907) 455-5061, dsoderlund@princesstours.com

Dick Wells, Automated Laundry Systems & Supply, (907) 561-1752, dick@autolaundrysystems.com

**SAVINGS REALIZED IN 2008**

| Fuel Oil | Water | Wastewater | Linen | Chemicals | Time/Labor | Total Savings |
|---|---|---|---|---|---|---|
| $28,767 | $816 | $16,000 | $4,373 | $8,900 | $19,666 | $78,522 |

*Green Star is an Anchorage-based non-profit organization dedicated to assisting, certifying and recognizing businesses committed to resource efficiency and environmental leadership.*

5011 Spenard Road, Bldg. A, Suite 204, Anchorage, AK 99517
Phone: (907) 278-7827 ~ Fax: (907) 279-5868
info@greenstarinc.org ~ www.greenstarinc.org

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