



Idaho Department of Environmental Quality Pollution Prevention Champion

Idaho Sand & Gravel/Idaho Concrete
Nampa, Idaho
2010

Environmental Commitment

The mission of Idaho Sand & Gravel / Idaho Concrete is to be The Preferred Source of quality construction sand and gravel, landscape products, ready mixed concrete, asphalt, and paving and construction services. Part of this mission includes a strong commitment to environmental protection. The first step in achieving environmental excellence is a philosophical and financial commitment from company executives to support sustainable manufacturing methods. Idaho Sand & Gravel / Idaho Concrete dedicates significant resources to go beyond environmental compliance and strive for environmental sustainability.

Environmental compliance maintains the status quo and does not demand improvement. However, the measure that sets Idaho Sand & Gravel / Idaho Concrete apart is its willingness to go beyond the regulations and strive for sustainability. The company does this by adopting systematic environmental management techniques, utilizing secondary materials wherever possible, voluntarily cleaning up resource extraction areas, and utilizing new environmental technology where possible.

In 1991, the company implemented a dedicated environmental department with the goal of ensuring that all operations exceed applicable environmental regulations. The systematic approach to this goal included identifying environmental risks associated with the company's manufacturing processes and obtaining necessary permits. Performance measures were established and an auditing system was designed to ensure that the performance targets were met. As upper management reviewed environmental performance measurements, potential improvements were incorporated into business plans. As facilities came into compliance, higher standards were set and continuous improvement was demanded. This continuous improvement cycle has led to many innovative solutions for environmental sustainability within the company.

Pollution Prevention Success

Energy Efficiency

According to the U.S. Department of Energy, motor-driven equipment accounts for 64 % of the electricity consumed by U.S. industry. Within the nation's most energy-intensive industries, motor systems consume approximately 290 billion kilowatt hours per year. One way to reduce such high energy consumption involves variable frequency drives (VFDs), which reduce electrical energy consumption by adjusting a motor's speed to match the required load. Many electric motors simply do not need to run at 100 % capacity all of the time, such as those that power fans and pumps used in heating, ventilation, air conditioning, and process-pumping applications.

To reduce its energy consumption, Idaho Sand & Gravel/Idaho Concrete has replaced older electric motors with VFDs on all of its active asphalt plants, including the Ten Lane plant in Nampa, the Federal Way plant in Boise, and the Jerome plant. These replacements have saved 678,763 kilowatt hours per year.

Idaho Sand & Gravel/Idaho Concrete also replaced the boilers at its plants in Bellevue and Twin Falls with high efficiency direct-fire heaters. Because of the low throughput of the old boilers, the boilers would run continuously and required that hot water be stored in insulated tanks. The new direct-fire heaters operate on demand and do not require the storage of thousands of gallons of hot water. Besides operating more safely (the direct-fire heaters are not pressurized), the new heaters run at an efficiency of 99.7%.

Company-wide, Idaho Sand & Gravel/Idaho Concrete replaced 172 incandescent lights with compact fluorescent bulbs and replaced 1,650 older T12 fluorescent light fixtures with high-efficiency T5 and T8 fixtures, saving 420,000 kilowatt hours per year. According to the federal government's ENERGY STAR website, lighting can account for 20% to 50% of electricity consumption, depending on the type of business operated. This means that significant cost savings can be achieved with energy-efficiency improvements, and due to continually improving equipment, lighting usually provides the highest return-on-investment of major upgrades. T8 and T5 lamps offer improved efficiency, higher intensity, and potentially longer life due to reduced degradation in light output over time.

Recycling and Reuse

In one year, Idaho Sand & Gravel/Idaho Concrete diverted over 62,000 tons of materials from the landfill through reuse and recycling of asphalt. Used asphalt, also known as reclaimed asphalt pavement (RAP), is recycled and incorporated back into new asphalt by up to 15% of the mixture, the maximum allowed under state specifications. (Idaho Sand & Gravel/Idaho Concrete is actively lobbying the Idaho Transportation Department to increase the allowed percentage of RAP in new asphalt.) Idaho Sand & Gravel/Idaho Concrete crushes concrete from demolition activities and excess concrete not used on job sites and uses it as structural fill on road projects. The company also produces decorative concrete blocks with leftover concrete. The blocks are used at company plants for improvements or are sold to the public. Many block forms have incorporated rock-like textures to make the blocks more visually appealing.

Idaho Sand & Gravel/Idaho Concrete uses recycled burner fuels to reduce demand on virgin fuel resources. Recycled burner fuel consists of used oil from the automotive maintenance industry. The used oil is filtered and tested to insure that it is not a hazardous waste. The recycled burner fuel reduces or replaces the use of natural gas and diesel fuel. In one year, Idaho Sand & Gravel/Idaho Concrete used approximately 519,000 gallons of recycled burner fuel.

Another recycled product the company uses is fly ash, a combustion by-product from coal-fired power plants. Fly ash is incorporated into many concrete mixes to reduce the amount of cement required. Cement production is very energy intensive and produces about 5% of global greenhouse gas emissions.¹ For each ton of cement produced, roughly one ton of CO₂ is produced as a byproduct. Each ton of fly ash used to replace cement in concrete production offsets one ton of greenhouse gas emissions.² Each year, Idaho Sand & Gravel / Idaho Concrete replaces approximately 13% of the cement content in its concrete with fly-ash, which results in a savings of about 12,000 tons of greenhouse gas emissions.

For More Information

For more information about Idaho Sand & Gravel/Idaho Concrete, visit www.stakerparson.com.

1 "Emission Reduction of Greenhouse Gases from the Cement Industry." C.A. Hendriks, et al. World Business Council for Sustainable Development

2 AP 42 - Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources, Environmental Protection Agency, Washington, DC, 2005. CO₂ production is about ton for ton of cement production.

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