

Biodiesel

and Other Green Initiatives at Glacier Northwest

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Glacier Northwest is the largest supplier of aggregates, cement and concrete in Oregon and Southwest Washington. The company slogan is “Expect More....We Deliver.” Powered by biodiesel, those deliveries are now a little greener. Last year, on a sunny day in May, Glacier Northwest announced their conversion to blended biodiesel fuel to power equipment at 12 ready-mix concrete plants and five aggregate sites across the Portland, Ore., and Southwest Washington metro region. Biodiesel usage will include Glacier’s fleet of 200 ready-mix trucks, dump trucks, concrete pumps,



Glacier Northwest's mark Liefke (left) and Portland City Commissioner Randy Leonard announce Glacier's commitment to using biodiesel fuel in all the company's truck and equipment.

plant front-end loaders and diesel-powered equipment such as dozers that operate at the aggregate plants.

City Commissioner Randy Leonard, who oversees the City of Portland's Office of Sustainable Development and other green initiatives, joined representatives from Glacier, Carson Oil, the Portland Development Commission, the Northwest Biofuels Association and the Associated General Contrac-

tors at Glacier's Front Avenue ready-mix plant and aggregate distribution yard to celebrate the announcement.

Plan, Test, Implement

"This is just the right thing to do, and it's good business," said Mark Liefke, vice president and general manager for Oregon and Southwest Washington. "Even though our analysis shows it may cost more initially to use biodie-

sel fuels, our return will be in doing our part to help preserve the environment and help with our ongoing efforts to maintain and build on our positive relationship in the communities where we work and do business. In addition to being domestically produced, biodiesel is a renewable fuel and has positive performance attributes.

"Using biodiesel is something the company has looked at for some time,"

Liefke continued. "It's not just a matter of switching over one day. We needed to make sure that engine warranties would remain in effect. We needed to verify that the change would not increase engine wear and maintenance or reduce fuel efficiency."

A year ago, Liefke initiated a biodiesel pilot project to determine the effects on engine wear, fuel economy and overall performance. The testing indicated that there were no negative impacts from the use of biodiesel fuel. Glacier also needed to be assured of a reliable supply that meets ASTM standards. According to Commissioner Leonard, Glacier's projected annual consumption of biodiesel nearly equals the amount produced in the entire state of Oregon in 2006.

Greener Aggregate Production and Transport

Glacier's aggregate plants are comprised of both sand and gravel and

hard rock operations. At all plants various measures are taken to protect the environment and to save energy. Berms or other secondary containment devices are used to prevent leaks and spills from contaminating storm water. All bulk petroleum and hazardous substances are stored within covered concrete containment structures sized to hold at least 110 percent of the contents of the containers. Spill kits are located on site and carried on trucks to ensure containment in the event of a spill. Oil/water separators are installed within the recycled water system for the steam cleaning operation. All shop wastes such as used oil and anti-freeze are stored on-site in covered containment until they are collected for recycling. Used tires and empty 55-gallon drums are returned to vendors for reuse or recycling.

Erosion and sediment control methods such as vegetating exposed areas, installing detention basins, graveling,

etc., are employed to minimize sediment loads in storm water. Aggregate storage areas are heavily compacted and covered in packed gravel to prevent erosion. All parking areas and internal roadways are also covered in packed gravel. Multiple rock check dams help slow the storm water flow and separate suspended solids prior to discharge. Drainage ditches contain long grasses to promote solids removal. Storm water is diverted away from fueling, manufacturing, treatment, storage and disposal areas to prevent exposure to potential pollutants. All fueling is attended and the fueling areas are covered to limit exposure to storm water. The only materials exposed to stormwater leaving the site are aggregate stockpiles.

To minimize pollutants, monitoring and housekeeping are ongoing activities. Sweeping, prompt clean up of spills and leaks and proper maintenance of vehicles are all employed.



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Site equipment is used to keep sites graded properly and to ensure roadways are covered in packed gravel. Monthly inspections of petroleum storage areas, admixture areas and aggregate stockpiles look for spills or leaks. Inspections of storm water control measures, structures and treatment facilities are carried out monthly and performance is monitored. Cleaning, maintenance and/or repair of all areas that have a potential to pollute storm water is done immediately.

In the Portland area, two projects were recently completed in conjunction with Columbia River People's Utility District (PUD). The first project was to correct size and replace all the pit line electric motors with premium efficiency motors and one cog belt drive; this resulted in an annual savings of 72,165 Kwh/year. This project cost just more than \$20,000. In conjunction with the Bonneville Power Authority, the PUD will rebate nearly \$9,000. The second project was a lighting upgrade to replace all the lighting with energy efficient fixtures. This upgrade cost \$27,000 with an annual savings projected to be \$8,000, PUD is rebating \$6,300 and we will receive close to \$4,000 in tax credits.

When making upgrades to save energy, Liefke finds support from and technical expertise from Glacier's parent company, California Portland Cement (CPC). CPC earned the 2007 ENERGY STAR Sustained Excellence Award in recognition of its continued leadership in energy efficiency. This is the third year in a row that CPC has been honored with a major ENERGY STAR award. An ENERGY STAR partner since 1996, the company has increased energy efficiencies through a company-wide effort. A team of engineers and plant managers successfully and systematically improve processes in manufacturing, electrical and lighting systems, mechanical systems and more. Reductions in energy usage have saved the company more than \$3 million in the last three years.

Glacier also provides sand and aggregates to other local concrete and asphalt suppliers. Taking advantage of the Willamette and Columbia rivers, barges move material produced at the Santosh facility to sales yards located on the water. With 2,000 to 3,000 ton capacities, each barge load moves enough material to eliminate 60 to 100 trucks from the road. This significantly cuts fuel usage, emissions and traffic congestion. While water transport is not new, the benefits to the environment need to be touted to the public and to local government officials.

Greener Concrete Operations

Several years ago, Glacier added self contained truck mounted wash-out buckets to each concrete mixer. These systems allow a driver to wash down the chutes without dropping any concrete or water on the site. The aggregates are retained and the high ph slurry water goes back into the mixer drum. At the plant sites, returned concrete is put in forms to make ecology blocks, and truck washout is run through on site reclaimers or stabilized with chemicals for reuse. All storm water is managed and process water is treated for ph and solids and gets recycled. To keep process water and stormwater separate, each plant has a series of curbs and berms which separate drainages.

Green Products Increase Market Share

In addition to greener operations, Liefke points to new end products that contribute to sustainability. Glacier Northwest has become a leading supplier of pervious concrete. This concrete allows a hard surface for parking and driving, but since it has no fines, it allows stormwater (of which the Northwest has no shortage) to pass directly through the void structure to infiltrate into the subgrade. Most subgrades for pervious concrete are an engineered base course which not only supports the pavement, but serves as an infiltration basin. To train local contractors to install this concrete, Glacier has conducted two training courses ad-

ministered by the NRMCA. Primarily used for parking lot applications, Glacier has also supplied the material for street paving applications in the City of Portland. After two years of use, the pervious concrete streets are exceeding expectations.

Just the opposite of pervious concrete is Glacier's Waterproof Concrete. With the Everdure Caltite system, Glacier supplies waterproof concrete for Green Roof and deep basement projects. Green Roofs are most common in commercial buildings to reduce stormwater runoff and reduce heat islands in urban environments. Using Glacier's Everdure Caltite, a designer can specify an eco-roof or a deep basement that does not leak, without costly membranes, which may need to be replaced. This saves construction time and expense, and also frees the owner of the worry of a membrane leak. Recent jobs in Portland include car dealerships that save land expenses by parking cars on a waterproof concrete slab that serves as the roof of their buildings.

To help owners save energy, Glacier also distributes Arxx Insulating Concrete Forms. In the Pacific Northwest, most homeowners are reporting a 50-percent reduction in heating expenses. Liefke employs two full time technicians helping both residential and commercial customers. In addition to supplying Arxx ICF blocks and concrete to more than 500 homes in their marketplace, Glacier recently supplied Arxx ICF blocks and concrete to a six-story mixed use building in Portland.

In the Pacific Northwest, operating an aggregates and concrete business requires keeping the environment in mind in all operations. In the Portland area, Liefke notes that in many ways it is easier to be an environmental leader, rather than reacting to regulations; he has seen Glacier Northwest's proactive approach pay dividends in many areas. Both customers and employees appreciate being affiliated with a company that leads in protecting the environment while providing the materials and services they need. ■