



Whitman Mission National Historic Site *Goes Green*

By Bruce Hancock, Chief of Maintenance, Whitman Mission National Historic Site

Editor's Note: On the United Soybean Board website, www.soybiobased.org, we urge our readers to submit their own "Biobased Stories." The following is an example of one reader's story. Let's hear yours!



photo credit: Whitman Mission

Bruce Hancock, chief of maintenance at Whitman Mission National Historic Site, started with biodiesel use in his facility's furnaces and has since added other biobased products, particularly in the maintenance shop.

IN THE WINTER OF 2006, WHITMAN MISSION decided to test biodiesel as an alternative, cleaner burning heating oil. The 3,500-square foot maintenance shop, with a 700-gallon above-ground fuel tank, became our test facility. That was the beginning. Today, Whitman Mission is as biobased as possible. We not only use biodiesel for heating, we use it in every diesel engine we operate. Beyond that, we now use a number of other biobased products park-wide, including:

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|---------------------------|---------------------|
| • Penetrating Lubricants | • Food-Grade Grease |
| • Bar & Chain Oil | • Cutting Oil |
| • Two-cycle Engine Oil | • Gear Oil |
| • Parts Cleaner/Degreaser | • Hydraulic Fluids |

We've found that all of these products work as well or better than their petroleum-based counterparts, and they are easy to use and clean up. I like them and so do the people who handle them.

Why this rapid conversion? As stewards of the many historic, cultural and natural resources of the park, Whitman Mission National Historic Site is committed to protecting our unique environment. As such, we continue to seek opportunities to utilize environmentally sound products that preserve and protect resources. We're totally on board with the National Park Service's (NPS) strategy to "Go Green."

In fact that's how we got started—by talking to other people throughout the NPS. One of the first persons I talked to was Chris Case, facility manager at Pictured Rocks National Lakeshore in Michigan, who has been featured in numerous United Soybean Board publications, and is a disciple for biobased products. In the short two years that Whitman Mission has been using biobased products, we've received six major environmental awards. In 2007, Whitman Mission National Historic Site received the National Park Service Environmental Achievement Award. This national award is due in part to our innovative use of biobased products. In September 2007, Whitman Mission was informed by the Washington State Department of Ecology that we are the recipient of the Governor's Award for Pollution Prevention and Sustainable Practices. In October, 2007, Whitman Mission was also informed that we are the recipient of the Department of the Interior Environmental Achievement Award. Other recognition came in October 2006 when Whitman Mission received three certificates of recognition from the U.S. Environmental Protection Agency's "Champion of Environmental Leadership and Green Government Innovation Recognition Program".

Like Chris Case and others in the NPS, such as Jim Evanoff from Yellowstone National Park, we feel it's our job to help inform the public about environmental stewardship and the use of environmentally friendly products. When interested groups come to the site, for example, they get a tour of our shop and hear about biobased products. The awards we've won are proudly displayed conspicuously at the visitors' center. We want everyone to "Go Green." ▶



photo credit: Whitman Mission

Maintenance Worker Diana Elder checks a biodiesel-powered furnace. The biodiesel blend helps Whitman Mission reduce nitrogen oxide and sulfur dioxide emissions.



photo credit: Whitman Mission

With the success of the pilot, we expanded our use of B20 in the park to our 2000-gallon fuel storage tank used for heating to our 6,800-square foot visitors' center, and all park equipment designed to use diesel fuel. Since biodiesel contains more oxygen by weight than fossil fuel, it burns more completely, reducing the unburned fuel emission toxics. B20 blends reduce particulate matter (by 12%), unburned hydro-carbons (by 20%) and carbon monoxide released into the environment (by 12%). Further, we know biodiesel has a positive energy balance, reducing life cycle CO2 emissions. It also reduces nitrogen oxide and sulfur dioxide when used as heating oil in our open flame boilers.

Maintenance Worker Jim Knapp and biodiesel used for heating and equipment fuel.



Biodiesel has been used in heating fuel applications at the B5 blend in other parts of the country, and some studies have taken place on B20 blends, but little information was available related to actual experiences using the B20 blend. The pilot project was set up in hopes of reducing emissions and sharing the lessons learned with private, commercial, and government facilities.

Note: Since submitting nominations for the various awards, the park has increased our biodiesel blend from 20% to 30% with no adverse effects noted.

After solving certain supply issues, we turned on the shop oil-fired furnaces for winter operation and added a recirculation pump to the shop furnace to facilitate maintaining a homogeneous blend. Over the course of the winter, we experienced outside temperatures down to 9 degrees Fahrenheit and experienced no equipment failures, fuel gelling problems, or comfort compromises to the heated spaces. So the end results is that we are able to get the same comfortable heat while realizing the environmental, safety and performance benefits of biodiesel, a renewable, soy-based product.



Biobased products are used in a wide array of equipment at Whitman Mission, including the this vehicle (photo to the right) and the mower (upper, left) operated by Diana Elder.

photo credit: Whitman Mission

FACT FILE

Whitman Mission National Historic Site is located approximately seven miles west of the city of Walla Walla in southeastern Washington State. At only 138.53 acres, it is one of the smallest of the 58 National Park Service sites within the Pacific West Region. Bruce Hancock can be contacted at Bruce_Hancock@nps.gov or by calling him at **509-522-6359**.

Research by Brookhaven Laboratories and the National Oilheat Research Alliance on the use of biodiesel in open flame burners is available at www.biodiesel.org along with other research on biodiesel benefits.

America's farms are just beginning to tap their potential as a source for natural, renewable biobased products that

offer benefits to worker health, the environment, America's economy and energy security. To learn more about the many biobased products made from soybeans, go to www.biodiesel.org. Because of the potential for biobased products to create new markets for soybeans, U.S. soybean farmers have invested millions of dollars to research, test and promote biobased products. Much of this work was done through the United Soybean Board (USB), which is composed of 68 U.S. soybean farmers appointed by the U.S. Secretary of Agriculture to invest soybean check off funds. As stipulated in the Soybean Promotion, Research and Consumer Information Act, USDA's Agricultural Marketing Service has oversight responsibilities for the soybean check off.

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