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Small historic site has big eye for biobased

Although Whitman Mission National Historic Site in Washington has only 140 acres and a small staff, the employees there have been able to replace all petroleum-based products—from oil to glass cleaners—with their biobased alternatives. They have shown that biobased products can be added on a shoestring budget when a commitment to the environment is already in place.

The site's vision statement has been the guiding light for Francis Darby, site superintendent, and Bruce Hancock, chief of maintenance. The statement seeks to protect cultural and natural resources in such a way that these resources will be accessible, available and relevant to a diverse public both today and in the future.

Located in the southeast corner of the state, Whitman Mission National Historic Site consists mostly of flat grassland and vegetation, except for a 100-foot high hill. It was established as a unit of the National Park Service in 1936 and became an historic site in 1962. The modern park facilities feature a visitor center, picnic area, employees' residence, maintenance building, access road, parking lot and paved trails.

Among the biobased products in use are hydraulic fluid, penetrating lubricant, cleaning products and a multitude of different machine oils. "We started off small by using biobased two-cycle oil and penetrating lubricants first and have continued to add new biobased products every year," Hancock said. He plans to explore replacing motor oil with a vegetable-based oil this year.

The biobased products cost somewhat more, but Hancock does not see the additional expense as a problem because the products protect the environment. "One spill of petroleum chemicals can cost thousands of dollars," he noted.

Performance Benefits

Hydraulic fluid

One piece of equipment at the mission site is a John Deere tractor. The tractor's hydraulic fluid was drained and replaced with a biobased hydraulic fluid called EnviroLogic, made by Terresolve™. EnviroLogic is readily biodegradable and replaces petroleum oil-based hydraulic fluids, reducing environmental impact in the event of a leak or spill.

Penetrating lubricant

Hancock substituted a soy-based lubricant manufactured by Renewable Lubricants for WD-40®. This non-toxic product eliminates the potential for hazardous leaks and spills.

Machine oils

The staff replaced petroleum two-cycle oil used in chain saws and weed eaters with a biobased alternative two years ago and has had no problems. The two-cycle engine oil is

biodegradable, with a low-smoke formula. A biodegradable, biobased gear oil also is used for Bush Hog® mowers. It offers good heat stability. Chain saws are lubricated with a biobased bar and chain oil that performs well in cold temperatures. In addition, a biobased cutting oil is used to clean shavings from drilling and pipe threading.

Cleaning products

Many green custodial products, such as glass cleaners, floor cleaners and general all-purpose cleaners, are provided by Bi-O-Kleen. These citrus-based products have few fumes, low ph levels, and are completely biodegradable.



The green custodial products used at the historic site contain citrus oils and are biodegradable.

Cost Benefits

- Reduced clean-up costs. The vegetable oil-based hydraulic fluids are non-toxic, rapidly biodegradable, and involve less expense during clean up.
- Decreased product line. The same biobased cleaner can sometimes be used in different concentrations for different jobs, reducing the number of products dramatically.
- Less respiratory protection. Because biobased products are less toxic during spills, workers are not required to wear as much respiratory protection.

- Improved workplace health. The general health of employees is affected in a positive way. Biobased products contribute to a healthy workplace, resulting in fewer days absent from work because employees are not exposed to toxic chemicals.
- Decreased equipment wear. The lubrication from the vegetable oil creates less friction, which make these products last longer.



The maintenance staff relies on soy-based lubricants manufactured by Renewable Lubricants.

The Whitman Mission Historical National Site has received accolades for its work protecting the environment. In 2007, Whitman received the U.S. Department of Interior’s Environmental Achievement Award for its commitment to sustaining and preserving natural resources.

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The historic site received a special federal environmental award for its efforts to protect natural resources.



