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NEW FUEL AND FEWER FUMES FOR TAMARACK

MAMMOTH MOUNTAIN, CA – As part of their ongoing commitment to resource conservation and greenhouse gas reductions, Mammoth Mountain Ski Area has begun testing a cleaner burning alternative fuel for use in the diesel-powered Pisten Bully snowcats and Case bucket loader at Tamarack Lodge and Cross Country Ski Resort. Known as “B20” biodiesel, the fuel is a blend of 80 percent standard diesel and 20 percent biodiesel made from American-grown soybeans.

While some warmer locations are able to use 100 percent biodiesel, the 80/20 blend has been proven reliable in cold temperatures. According to Bob Bradbury, Mammoth Mountain’s Energy and Infrastructure Manager, “This is not new science and has been tested successfully at other ski areas, including Northstar at Tahoe and Alpine Meadows, but it does require special handling.” Due to the nature of the oil, cold temperatures cause crystals to form, which then wreak havoc on fuel filters. “The biodiesel we’re using has been winterized with a standard additive to depress the cloud point, or the temperature at which crystals begin to form,” he explained. “We’ve tested it successfully down to –16 degrees Fahrenheit, so we’re pretty comfortable using it in the extreme conditions we experience up at Tamarack.”

In addition to being a great place for cold temperature trials, Tamarack resort was selected for the initial test because of its topography as a glacial valley which tends to hold the air within the local basin, as well as the pristine nature of its surrounding environment. “When you go up to Tamarack, it’s a different experience than everywhere else around Town. It’s quiet and fresh. If a machine is putting off smelly, noxious smoke, you know it,” explained Lisa Isaacs, Mammoth Mountain’s Environmental Programs Manager. Duane Ono, Deputy Air Pollution Control Officer for the Great Basin Air Pollution Control District, was also very pleased with the test location. He noted that, to his knowledge, it is the first time biodiesel has been used in this air district, which encompasses Inyo, Mono and Alpine counties, and he is “very interested” in test results.

Within the last few years, biodiesel has become more widely accepted and used throughout other regions in North America and Europe mainly due to its lower air emissions. The U.S. Environmental Protection Agency recently reported that B20 can reduce emissions of carbon dioxide and unburned hydrocarbons by 20 percent over standard diesel, as well as a 12 percent reduction of both carbon monoxide and particulates. The reduced emissions also noticeably increase driver and passenger comfort. Isaacs, who recently rode along in one of the test snowcats, was impressed by the obvious decrease in smell and smoke. “After an initial puff of smoke when the engine started up, I couldn’t smell or see anything coming

out of the exhaust pipe even though I put my nose close to it," she said. Snowcat driver Jeffrey Wenger said he mainly notices a difference in exhaust smells when he's fueling the vehicles. "Our first impressions are very positive," he stated. "It's cut the fume smells in half."

According to Graham Noyes, western U.S. director for World Energy (one of the world's largest suppliers of alternative fuels), biodiesel burns hotter than regular diesel so it incinerates more efficiently with less smoke. Additionally, the BTU content (measurement of available energy in fuel) of the B20 blend is almost identical to straight diesel and typically there isn't any noticeable change in power or fuel economy. "We haven't noticed any decrease in power or had any problems cold starting either of the cats or the loader," Wenger testified.

While there are no special maintenance requirements or preparations necessary to switch a vehicle over to biodiesel, it acts as a solvent and cleans out deposits in fuel lines and engine parts, requiring an early filter change the first time it's used. This also leads to noticeable black soot when it's first burned as dirty lines are scrubbed out. Additionally, biodiesel has more lubricating properties than regular diesel, so it leads to less wear and tear on the engine. All these benefits should lead the public to wonder why it hasn't been popularized earlier. In fact, biodiesel has a very long history with diesel-powered engines. According to the November 2003 issue of *Ski Area Management*, when Rudolf Diesel first invented the engine named after him, it was powered on pure peanut oil. That's right, diesel engines were designed to run on vegetable oil. Now, after a century of dependence on petroleum-based fuels, biodiesel is returning us back to our simple roots, or beans or legumes as the case may be.

Aside from soybeans and peanuts, biodiesel is made from a variety of other plant and animal sources, including used grease and cooking oil from deep-fat fryers, which is why it often smells like French fries or whatever was cooked in it. "The soybean oil in our biodiesel wasn't used before, so it doesn't smell like food, but it would be great if we could recycle our own cooking oil," Isaacs said. "We need a local entrepreneur to run with that idea and start refining biodiesel. There's a great business opportunity here."

If someone were to take up the challenge, it could be very lucrative indeed. Biodiesel is more expensive to purchase than standard diesel at this time; but in comparison, it doesn't have as many of the risks, costs, environmental impacts or political issues associated with it as drilling, refining and burning petroleum products. World Energy is currently quoting around \$2.00 per gallon wholesale for 100 percent biodiesel, while standard diesel is around \$1.10 per gallon. The B20 blend Mammoth is testing currently sells for about 20 cents more per gallon wholesale than regular diesel, but Mammoth's top-level management feels the increased expense is worth it. According to Rusty Gregory, Mammoth Mountain's CEO, "If it goes well at Tamarack, we will start using it mountainwide."

For more information, contact Mammoth Mountain's Department of Environmental Programs at (760) 934-0773 or email: environment@mammoth-mtn.com.



Caption: Both of the Pisten Bully snowcats and the Case bucket loader used at Tamarack Lodge and Cross Country Ski Resort are testing B20 biodiesel this winter as part of Mammoth Mountain's commitment to resource conservation and greenhouse gas reductions.

Mammoth Mountain Ski Area is the leading four-season mountain resort in California. The company owns and operates Mammoth Mountain Ski Area, June Mountain, Tamarack Lodge and Resort, Mammoth Snowmobile Adventures, Mammoth Mountain Bike Park, Mammoth Mountain Inn and also operates Juniper Springs Properties, the Village at Mammoth Properties, and Sierra Star Golf Club in Mammoth Lakes, California. For more information on Mammoth Mountain, visit www.MammothMountain.com or call 800.MAMMOTH.

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