

O<sub>2</sub>  
DIESEL

# e-mission

## O<sub>2</sub>Diesel™ Fuels Brazilian Truck Racing Team

On several occasions, O<sub>2</sub>Diesel's use as a racing fuel has been actively considered by its manufacturer — but not until July 2004 and in the forests and mountains of Northeastern Brazil, did such an event finally take place.

Rally Internacional dos Sertoes 2004, a major 10-day cross-country truck racing event, is the world's third largest such rally with some 200 participating teams. Competitors faced 4,500 km of the worst roads and trails of "backwoods" Brazil, the actual meaning of Sertoes, the Rally's name.

Operating on O<sub>2</sub>Diesel and placing fifth overall was a contingent of three mid-sized Volkswagen trucks operated by Yahn Racing, one of Brazil's most experienced teams. In this case, the blend was 8.0vol% ethanol



O<sub>2</sub>Diesel powers Yahn Racing to 5th place

and proprietary additives.

Each of the specially outfitted VWs was powered by a new 6-cylinder, 460 hp. MWM engine in which Yahn Racing was only too pleased to also be able to use O<sub>2</sub>Diesel, a higher cetane, higher lubricity, cleaner burning fuel.

Everyone was very happy with the fuel's performance — greatly enhanced by the added media interest in the debut of an environmentally responsible racing fuel. Videotaped interviews with race-truck drivers told the story.

"The fuel showed very good performance without any decrease in potency," commented team driver, Luciano Braga. "Smoke emissions were reduced. The usually thick black smoke turned into light grey colored exhaust."

(See p.2)

## Lincoln Debuts First O<sub>2</sub>Diesel™ Fleet-Wide Rollout

With three years of satisfactory O<sub>2</sub>Diesel use behind it and full encouragement from the Nebraska state government and its large agricultural sector, transit authorities in the capital city of Lincoln this month began the first full-fleet roll-out of this superior oxygenated diesel-fuel technology.

The switchover of 58 coaches and 9 paratransit vehicles operated by Lincoln StarTran started March 10, and O<sub>2</sub>Diesel President Alan Rae says he is frankly "very pleased with the endorsement that comes with getting our first fleet-wide rollout."

From August 2000 to August 2003, Lincoln StarTran operated four Gillig buses on O<sub>2</sub>Diesel and "experienced no significant operational differences" compared to standard diesel fuel, said Transit Manager Larry Worth.

"One thing we did notice however," comments Worth, "was that



Some 58 coaches and nine paratransits switching to O<sub>2</sub>Diesel

buses operating on O<sub>2</sub>Diesel produced significantly less visible smoke at start-up and across the operational spectrum."

The four engines tested during the demonstration were newly rebuilt two-cycle Detroit Diesel 6V92s, but the bulk of the Gillig-dominated fleet being converted to O<sub>2</sub>Diesel will be Cummins ISL engines and 7.3 litre Ford Power Stroke engines in the smaller ParaTransit buses, says Fleet Manager Glenn Knust.

Set to consume some 30,000 gallons of O<sub>2</sub>Diesel fuel a month, StarTran's conversion to E diesel has Nebraska's burgeoning ethanol industry in an optimistic mood.

Major project sponsor, the Nebraska Ethanol Board (NEB), is "hopeful this is the start of something big," says NEB Administrator Todd Sneller.

## "VEETC" Now Law

On October 22, 2004, President George Bush signed into law HR 4520, the American Jobs Creation Act of 2004 — a sweeping trade and development bill that, among a variety of other tax matters, included the long awaited passage of VEETC, the "Volumetric Ethanol Excise Tax Credit."

A significant departure in philosophy from historical U.S. ethanol tax incentive programs, the main purpose of VEETC is to remove funding for the present

(See p.2)

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## Port of Los Angeles Funding O<sub>2</sub>Diesel™ Project

The Los Angeles Board of Harbor Commissioners has approved funding the incremental costs of 5 years of O<sub>2</sub>Diesel use.

The program will take place at one of the port's biggest berth operators, Hugo Neu-Proler, America's largest processor, recycler and exporter of high-grade steel scrap.

The Harbor Board's grant funds the use of 108,600 gallons per year of O<sub>2</sub>Diesel by equipment and trucks in use at the port's scrap



Hugo Neu-Proler's scrap metal processing

metal processing facility, plus the cost of six oxidation catalysts.

Hugo Neu-Proler consumes some 600,000 gallons of diesel fuel annually at its 27-acre Berth 210/211 operation.

The Port of Los Angeles' technical advisory committee found O<sub>2</sub>Diesel to be among the most cost effective strategies to reduce emissions, particularly smoke and particulate matter, coming from the scrap metal processing site.

## John Deere Engines Meet E-Diesel Emissions Expectations

Positive results from six months of ethanol-diesel emissions testing at Southwest Research Institute (SwRI) in San Antonio, TX, are beginning to show a growing consistency as to the fuel's environmental benefits.

Coordinated by leading world engine manufacturer, John Deere & Company of Moline, IL, the SwRI emissions testing was done on three different John Deere engine types. Three different fuels were tested, as well—No. 2 diesel blended with 7.7, 10 and 15vol% ethanol.

The three brand-new test engines consisted of a 6.8 liter typical small tractor motor with a rotary-injection fuel pump; a larger 8.1 liter farm/construction equipment engine, with common-rail fuel injection; and a larger still 12.5 liter heavy equipment and generator-set engine, with electronic unit-fuel injection.

Results vary from engine-to-engine, with the biggest reduction experienced by the most serious pollutants.

For visible smoke, reductions as high as 61% were attained in these brand new engines, an emissions task seen by all as a much stiffer challenge.



### O<sub>2</sub>Diesel™ Races Well

(From p.1)

Fellow driver, Paulo Jose, echoed Braga's interest in adopting a cleaner brand of racing fuel, "This means fewer pollutants in the atmosphere. That's why we think this fuel is ecologically viable."

Team owner Alfredo Yahn was even more enthusiastic. "We tested the fuel prior to the race and were satisfied with the result. But today on the track, it was even more exciting. With certainty, we must unite ecological concern without harming the performance of our vehicles."

The Brazilian video concludes, "not even the worst conditions hamper the performance of O<sub>2</sub>Diesel. The fuel demonstrated full power and thrust in facing the obstacles found in the cross-country trial."

Meanwhile, particulate matter (PM) was reduced

by as much as 30%; carbon monoxide curtailed by up to 19%; and the combination of hydrocarbons (HC) and oxides of nitrogen (NOx) were reduced by as much as 9%.

This marks the end of Phase 1 of a rigorous 2-year \$2.2 million durability, performance and emissions testing program, funded by the National Corn Growers Association, the U.S. Renewable Fuels Association, the Illinois Department of Commerce and Economic Opportunity, six state corn grower associations, plus O<sub>2</sub>Diesel, Inc. and the E-Diesel industry.



## O<sub>2</sub>Diesel Gains Additional Federal Funding

In its continuing support for cleaning up U.S. diesel fuel emissions, Congress has appropriated the Department of Energy an additional \$500,000 for O<sub>2</sub>Diesel testing in civilian applications in FY05, to accompany an existing \$1.2 million for Dept. of Defense (DoD) testing programs.

Federal appropriations for O<sub>2</sub>Diesel over the past three years



Sen. Harry Reid

## Ethanol Tax Reform

(From p.1)

51 cent/gallon tax incentive from the federal Highway Trust Fund, plus extending it through 2010.

Further important amendments include unrestricted blends levels, equal application to off-road use and an expansion to diesel, the latter two facets bearing heavily on the future success of ethanol-diesel blends in the U.S.

"Apart from now applying to diesel for the first time, this will also simplify and greatly encourage ethanol's use in that sector," notes Larry Schafer, Vice-President of the Washington, DC-based, Renewable Fuels Association.

"This legislation fully opens up the 55 billion gallon/year U.S. diesel fuel market to O<sub>2</sub>Diesel, Inc.," says company president, Alan Rae, "for beyond transportation it could significantly accelerate off-road fleet applications, such as mining, railroads, agriculture and government agencies."

## O<sub>2</sub>Diesel™ Showcased at MINExpo International

With 18,000 mining industry representatives in attendance at MINExpo International 2004 in Las Vegas, Sept 27-30, O<sub>2</sub>Diesel had booth space and enough boots on the ground to tackle this large bed-rock U.S. industry – one with a huge diesel demand and a strong environmental commitment.

In May, the National Mining Association (NMA) agreed to support O<sub>2</sub>Diesel's efforts to partner with mining companies to demonstrate oxygenated diesel fuel in above-ground mining operations.

"U.S. mining uses over one billion gallons of diesel fuel annually," says O<sub>2</sub>Diesel Pres. and CEO Alan Rae. "That makes this a very excit-



U.S. mining consumes over 1 billion gallons of diesel annually

ing opportunity for us, especially as new on- and off-road equipment regulations are making it necessary for all mining operators to evaluate new air quality options like O<sub>2</sub>Diesel."

"As an NMA member, we appreciate the chance to debut technology that enables mining operators to reduce emissions while maintaining the power and efficiency of equipment and vehicles."

## O<sub>2</sub>Diesel Scores Twin Brazilian Successes

O<sub>2</sub>Diesel has achieved a double marketing success in Brazil with the company's oxygenated diesel technology having been awarded alternative diesel fuel status by the Brazilian National Petroleum Agency, the first product to be so recognized in the country.

Additionally, O<sub>2</sub>Diesel has signed a major distribution agreement with Brazil's 6<sup>th</sup> largest diesel fuel distributor, ALE Combustives S/A of Belo Horizonte in the state of Minas Gerais.

"These twin developments mark important milestones in O<sub>2</sub>Diesel's Brazilian commercialization," said Alan Rae, O<sub>2</sub>Diesel's President and CEO. Brazil has a 30-year record with ethanol-gasoline blending, but remains a net importer of diesel.

## Nevada Grants O<sub>2</sub>Diesel™ Alternative Fuel Status

With California granting O<sub>2</sub>Diesel "alternative diesel fuel status" in September 2003, the State of Nevada followed suit in mid-2004 August with an official announcement recognizing O<sub>2</sub>Diesel's technology as an alternative fuel, based on its environmental benefits.

The Nevada Division of Environmental Protection now lists O<sub>2</sub>Diesel as an alternative fuel, meaning it is available for state, county and municipal fleets of 10 vehicles or more, all of which are required to switch from "traditional" transportation fuels.

Nevada's alternative fuels legislation applies mainly to the state's two most populous areas,

Clark County including Las Vegas and Washoe County, which includes the city of Reno.

Clark County is considered to be the fastest growing metropolitan area in the U.S. It also has been redesignated this year by the Environmental Protection Agency as an ozone nonattainment area, bringing about new and stricter emissions requirements designed to correct the situation.

"Nevada's recognition that O<sub>2</sub>Diesel can be a valuable tool in helping meet local and national clean air objectives is another important milestone in our company's drive into markets that need solutions sooner rather than later," says Alan Rae, company President.

## Tulare Co. Values O<sub>2</sub>Diesel's Cost, Easy Use

In California, every county government fleet manager and equipment supervisor is casting an eye these days at their fleets of trucks and heavy equipment, all with one thought in mind regarding the latest environmental news coming out of either Sacramento or Washington – and that is, “What diesel emission reduction strategy should we adopt?”

Tulare County, a central state jurisdiction south of Fresno, is no different, with management there opting for cost and ease of use, as the two main criteria in selecting O<sub>2</sub>Diesel for their first field trial of an alternative diesel fuel.



Tulare County, CA gravel trucks

Twelve Navistar-powered trucks have been chosen for the



Asphalt hauling and spreading truck

demonstration, with roles as varied as water and gravel trucks, heavy-duty maintenance vehicles and asphalt hauling trucks. They vary in age from less than a year old to 30 years old.

The Tulare County action, coupled with activities already underway at nearby Fresno County (See p.4), have “sparked an interest across central and southern California,” says O<sub>2</sub>Diesel West Coast representative John Browning.

“The timing couldn’t be more perfect for us,” he adds, “because once our formal Diesel Emission Control Strategy is granted by CARB, then this whole market should open up.”

## General Petroleum Completes California Coverage

O<sub>2</sub>Diesel is pleased to announce that with the addition of Southern California fuel jobber, General Petroleum of



A General Petroleum on-site refueling truck

Rancho Dominguez, to its distribution network, the oxygenated diesel fuel company now has a complete distribution infrastructure in California – America’s second largest diesel fuel market.

Along with full distribution in neighboring Nevada and half of Texas, “The base for our Western U.S. marketing strategy is firming up nicely,” says John Browning, O<sub>2</sub>Diesel’s West Coast rep. “Now, we can do business throughout much of the West and not worry who’s going to deliver the fuel.”

General Petroleum (GP) is one of the two biggest transportation fuel jobbers in Southern California and not one to miss-out on the latest in alternative fuel technologies.

“As a fuel supplier, we are trying to offer technology that’s available that could possibly assist our customers in a reduction of emissions,” says GP Commercial Sales Manager, Chris Willig. “We are genuinely trying to assist every-

one in cleaning up our air.”

O<sub>2</sub>Diesel distributors in central and northern California include Silvas Oil of Fresno, Western States Oil in San Jose, Lakeview Petroleum of Marysville and Robinson Enterprises of Nevada City.

## Port of Long Beach Launching a Pair of O<sub>2</sub>Diesel™ Operations

The second busiest seaport in the United States is at Long Beach, California.

It is there, officials of the Port Authority, as well as one the facility’s biggest terminal operators, Long Beach Container Terminal, Inc (LBCT), have signed on to use O<sub>2</sub>Diesel’s emissions-busting, oxygenated diesel fuel technology.



Yard doos move Long Beach containers

## California Waste Haulers Reach for O<sub>2</sub>Diesel™

On November 17, 2004, Southern California’s first fleet of refuse trucks began operating on oxygenated diesel fuel — a sure sign of encouragement that O<sub>2</sub>Diesel’s 2003 CARB alternative diesel fuel status and more recent Diesel Emission Control Strategy (DECS) application are being taken seriously in combatting the state’s persistent air quality challenges.



Ventura County refuse trucks run on O<sub>2</sub>Diesel

Harrison Industries, a Ventura County solid waste hauling and recycling company, operates a fleet of 120 refuse trucks throughout the region. The conversion to O<sub>2</sub>Diesel began with 14 vehicles.

O<sub>2</sub>Diesel will be key to implementing the now effective (it was twice postponed) statewide diesel PM reduction program for refuse vehicles.

“More than two years of regulatory work has allowed this industry ample time to think things through,” says O<sub>2</sub>Diesel West Coast representative John Browning, “and there are definitely companies who have decided to use a fuel-solution to reach the first 25% PM reduction, rather than install an oxidation catalyst costing as much as \$10,000 per vehicle.”

“But they’ve got to do something,” he states, “because in California refuse trucks must

begin applying the best available technology starting this year.”

By 2006, each fleet must use the best available particulate reduction technology on 50% of its new trucks – in conjunction with ultra-low sulfur diesel, which must be used with nearly all hardware devices.

“O<sub>2</sub>Diesel is a cost-effective solution for these fleets,” asserts Browning, “and with our anticipated DECS approval, we’re ready to provide customers a path to regulatory compliance and cleaner air for the communities they serve.”

“We are very pleased that one of our most valued members has decided to undertake this most important fleet-fuel demonstration,” says Sean Edgar, Executive Officer of the Clean Fleets Coalition.

Harrison Industries’ fleet of attractive, light-green, refuse haulers consists mainly of late model Volvo, Freightliner and Peterbilt trucks.

Formal start-up at LBCT began in mid-February with five vehicles and now is being expanded to 65.

Long Beach Port Authority’s small fleet of vehicles is expected to be up and running on O<sub>2</sub>Diesel by late spring.

The Authority will convert its entire fleet, consisting mostly of flatbed trucks and service vehicles, owned by the city government agency.

“Our plan is to rapidly demonstrate the technology and then move quickly to convert all 27 of the Authority’s vehicles,” says



Long Beach is America’s 2nd busiest port

O<sub>2</sub>Diesel Executive VP James Peeples.

LBCT has a much bigger footprint at the Port. The 105-acre, eight-building complex boasts the deepest dredged dockside

along the U.S. Pacific Coast and is home to hundreds of pieces of diesel powered container unloading equipment and dockside moving trucks.

The latter are called “yard dogs” and are the focus of the trial. “We’re starting small with this one as well,” says Peeples, “but the potential here is huge.”

## Johnson County Tries Ethanol for Clean Diesel

With seven fuel ethanol distilleries and nearly 150 million gallons a year of production in Kansas, it comes as no surprise that municipal bus lines in the state might look to ethanol-blended fuel as a means to clean-up their diesel fuel emissions.



Johnson County bus

That's what Johnson County Transit (JCT) of Olathe, KS had in mind in starting Phase 1 of the latest O<sub>2</sub>Diesel program. Success with the 11-bus first phase will result in a 75-bus Phase 2 roll-out.

"It would be a fair statement that anything that benefits the local and state economy, we are open to pursue," explains JCT's Operations and Grants Manager, Patrick Campbell.

On the environmental front, "We are part of the larger Kansas

City Metropolitan Region in regards to federal EPA jurisdiction," he notes, "we are an air quality attainment area, but subject to annual testing and review."

"At the local level," adds Campbell, "we feel that anything we as a public bus company can do, to help clean up the air for our citizens and customers too, should be done – if it is within our means to deliver it."

Serving Johnson County, KS and the greater Kansas City, MO area, JCT will provide three General Motors RTS buses and eight Gillig coaches to the O<sub>2</sub>Diesel program.

The GMs are equipped with Detroit Diesel 6V92 engines, while the Gilligs have Cummins M-11 power plants.

## Nebraska Governor New Agriculture Secretary

Nebraska Governor Mike Johanns was recently confirmed the next U.S. Agriculture Secretary by President George W. Bush, replacing USDA Secretary Anne Venneman.



Gov. Mike Johanns

During his six years as Governor, Mr. Johanns both encouraged and presided over a significant expansion of Nebraska's ethanol industry, with 11 plants operating today and a total capacity of 500 million gallons.

Previously, Mr. Johanns served as the mayor of the state capital of Lincoln – a city whose municipal bus line, StarTran, has a full three

years of E-Diesel experience behind it, plus a recent groundbreaking decision to convert its 67-vehicle bus and paratransit fleet to O<sub>2</sub>Diesel (See p.1).

"Are we pleased with this appointment?" asks company Executive VP James Peeples. "You can bet on it," is his answer.

## Fresno County's O<sub>2</sub>Diesel™ Operation Running "Very Smoothly"

With nearly seven months of O<sub>2</sub>Diesel experience under its belt, the operation and maintenance facilities of central California's Fresno County report nothing but satisfaction with the first six of their vehicles to begin using the oxygenated diesel fuel.

A dump truck, two flat-beds, a service truck, truck tractor and PB Loader have all "run very smoothly from the beginning," says Fleet Manager, Sam Armentrout. "We've not experienced any problems."

"The drivers of the equipment have not noticed a difference in power or any other appreciable negatives" – thus leading to the best summation of all, "The fuel's working fine, no complaints."

Fresno County is one of 474 counties in 31 U.S. states falling short of meeting federal Clean Air



## Brazil's Biggest Sugar Mill First on O<sub>2</sub>Diesel™

With 30 years of ethanol-fuel experience under its belt, Brazil stepped into the E-Diesel world in September, 2004, with the inaugural use of O<sub>2</sub>Diesel by the COSAN Group.

The program unfolded at Barra Bonita in Sao Paulo State, site of the world's largest sugar production facility and one of 12 mills the company operates in Southeastern Brazil.

Describing the E-Diesel program, O<sub>2</sub>Diesel General Manager Peter Gross, reports, "We had 10 trucks operating on O<sub>2</sub>Diesel fuel and everything went very well."

Taking part were three heavy duty Scania trucks, as well as a number of smaller pick-up trucks.

The operation ran for three months, with COSAN manage-

ment now considering an expansion of the program to the nearly 200 vehicles and other pieces of equipment located at Barra Bonita and their 11 other sugar refining facilities in southern Brazil.

The O<sub>2</sub>Diesel technology is produced in Brazil by its manufacturing partner, Cognis, in Jacei. In this case, it is uniquely directed to COSAN for their own in-house ethanol blending.

COSAN processes over 23 million tonnes/year of sugar cane and produces 2.1 million tonnes of sugar and 700 million litres/year of fuel ethanol.

A wide variety of diesel-powered vehicles and different types of industrial equipment are in use by the company, consuming a total of some 50 million litres of fuel per year.



Fresno County dump truck

Act standards for ozone and therefore under the gun to reduce harmful emissions wherever possible.

At the state level, the California Air Resources Board is in the final stages of adopting new rules affecting public and utility fleets, that will require reductions in NO<sub>x</sub> and PM, says Armentrout.

"The Clean Air Act obviously generates most of the environmental impetus for us to use cleaner burning fuels, but California has

always been the leader in terms of forcing folks in the public and private sector into using innovative technologies."

"One of the benefits of switching to O<sub>2</sub>Diesel," he notes, "is that the pollution reduction benefits are immediate. By switching to cleaner burning diesel fuel, our county is doing something today to further improve local air quality for our citizens."

With O<sub>2</sub>Diesel now actively pursuing CARB verification for its fuel as an official Diesel Emission Control Strategy (DECS), Fresno County said it would consider permanent use.

"I would be more than willing to look at the full-fleet option," says its fleet manager. "I think O<sub>2</sub>Diesel is going to be one of those tools."

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