



A "Green Goat" hybrid diesel-battery locomotive will be among the new, environmentally friendly locomotives to replace Pacific Harbor Line's aging locomotive fleet.

## NEW LOCOMOTIVES TO IMPROVE AIR QUALITY

With an eye toward operating the nation's cleanest-running locomotive fleet, the ports of Long Beach and Los Angeles and Pacific Harbor Line have agreed to a \$23 million program to replace the entire PHL fleet of aged harbor locomotives with 'clean-diesel' and alternative-fuel locomotives. PHL provides railroad switching and dispatching services within the ports of Long Beach and Los Angeles.

Under the accord, PHL will acquire 16 locomotives equipped with new diesel engines. The engines will exceed the U.S. Environmental Protection Agency's strictest emission standards. PHL will also acquire two alternative-fuel locomotives – one using liquefied natural gas and the other, a "Green Goat" incorporating hybrid diesel-battery technology.

PHL is to begin using cleaner-burning emulsified diesel fuel immediately and all new locomotives will be equipped with 15-minute maximum idling limitation devices.

These changes will produce dramatically fewer air pollutants. Nitrogen oxide emissions will fall by two-thirds or 226 tons a year and particulate matter will be reduced by nearly 80 percent or five and a half tons a year. When the new engines are in place, PHL's locomotive fleet will emit fewer emissions, on average, than any other railroad in the United States.

"We are looking at all areas of port operations to see what we can do to improve air quality," said Port of Long Beach Executive Director Richard Steinke. "The agreement with PHL is a great example of the two ports and private industry working together to find solutions that benefit everyone."

The ports will each pay up to \$5 million toward the estimated \$23 million cost to replace the PHL locomotive fleet with PHL making up the balance. The South Coast Air Quality Management District is also adding a \$3.2 million grant from the State of California.



Light and shadow play across the inside of the under-construction storage shed.

The Port's Pier G bulk cargo complex, shown below, just before construction of the new shed began.



## GIANT SHEDS TAME COKE DUST

### Petroleum Coke Barn Culminates Air Quality Program

Industrial art? A sample of modern architecture? The headquarters for a high-tech dot-com? Actually, the newest building at the Port of Long Beach is the latest component of the Port's on-going Green Port environmental efforts.

The steel and concrete structure, erected at the Port's Pier G bulk cargo complex by Oxbow Carbon and Minerals LLC, will be used to temporarily house petroleum coke, a refining by-product that is a hot export to Asian steel mills and power plants.

During the storing, loading and unloading process, the pumice-like coke generates a fine dust that can be blown long distances by the wind. The dust can become a nuisance for the Port's neighbors.

Working together with its tenants, the Port met state and local requirements to control petroleum coke dust. Since the early 1990s, the Port's extensive program to reduce the dust generated during coke handling included moving all open coke piles inside covered sheds. Other steps

included enclosing open conveyer belts leading between the sheds and the dock; vigorous road, truck, and facility cleaning; and the construction of a new cleaner-operating shiploader for the facility.

The Port went well beyond the latest state requirements by making rigorous infrastructure and housekeeping improvements, such as regularly vacuuming terminal facilities and roadways.

To test the efficacy of the dust reduction program, an air monitoring program was voluntarily established by the Port at the close of 2000 and was to have run through the end of 2003. The Port chose to extend the program for two additional years.

The program's final report concluded that overall coke dust has been reduced by 80 percent since the efforts began.