PORT OF OAKLAND

MARITIME (Seaport) AIR QUALITY FACT SHEET

The Port of Oakland is working to improve air quality on many fronts, from designing more efficient terminals to installing exhaust controls on diesel equipment. Some of these activities are described below.

VISION 2000 AIR QUALITY PROGRAM

In 1999, the Port embarked on a harbor expansion program known as the "Vision 2000 Maritime Development Program." As part of the expansion program, the Port established an air quality program to reduce air emissions from many sources, including local buses, tugboats, terminal equipment, and trucks that haul shipping containers.

The Vision 2000 Air Quality Program is the outcome of an amicable partnership that evolved from what began as troubled relations between the Port and the West Oakland community, specifically West Oakland Neighbors. We, now work together to make a difference in the community. The Port allocated $8.98 million for this air quality program that is designed to reduce emissions from many sources, including diesel equipment. Together, as good neighbors, we have been able to accomplish the following:

- Local Buses. The Port conveyed $659,000 to AC Transit in 1999 to help repower 28 buses with cleaner running engines and retrofit them with exhaust controls. The cleaner buses are assigned to routes in West Oakland and neighboring communities. This will reduce 3.6 tons of particulate matter (PM) and 39.7 tons of nitrogen oxides (NOx) over the project lifetime of 9 years. These cleaner buses can be recognized by signs on the sides of each bus that include the Port's logo and a note that the low emission buses were provided by the Port of Oakland in partnership with West Oakland Neighbors. During this project, AC Transit hired 97 employees from West Oakland.

- Lesaffre (formerly "Red Star") Yeast Plant. The Port fully funded a study that identified ways to significantly reduce emissions of reactive organic gases at the plant. However, after the study was completed, Lesaffre closed the plant.

- Dust Control. Throughout construction of the new Vision 2000 facilities, the Port has monitored the construction sites daily to ensure that the dust control measures were in place and effective.

- Air Quality Monitoring. In 1997, the Port installed outdoor air monitors to measure the levels of particulate matter (PM) in West Oakland. The program measures PM-10 and PM -2.5 concentrations at two stations: one at the Port (the "Port station") and one in the West Oakland residential area downwind of the Port facilities (the "Residential station"). The Port station, located at 1919 Middle Harbor Road, is directly downwind from most of the Port's maritime activities. The Residential station is located on a rooftop near the intersection of Filbert and 24th Streets. During the construction periods associated with the Port's expansion, there was no noticeable increase in PM at the Residential station, suggesting that particulates from construction did not migrate into the residential community. The data correlates well

between the West Oakland monitoring station and Air District stations in the Bay Area, indicating that PM levels are more influenced by regional phenomena rather than by local activities.

- Truck Exhaust Controls. The Port is planning to launch a new program in early 2004 to help truckers replace older trucks with newer vehicles, and to install exhaust controls that will reduce particulate matter emissions. The West Oakland community has had a major hand in steering this program.

- Cleaner Fuels for Trucks. With a grant from the Air District and Port, Horizon Lines is now testing PuriNOx, an emulsified diesel made by Lubrizol, in its trucks. According to State tests, equipment outfitted with exhaust controls and fueled with PuriNOx will reduce PM at least 50% and reduce NOx at least 20%.

- Tugboats. The Port gave Oscar Niemeth Towing Inc. $408,300 to purchase state-of-the-art, cleaner-burning main engines for its tugboat, the *Silver Eagle.*

- New Technologies and Fuels. In 1999, the Port participated in a Brookhaven National Laboratory study of using liquefied natural gas (LNG) in heavy-duty terminal equipment and trucks. The Port continues to explore the feasibility and cost-effectiveness of new technologies and fuels that would reduce emissions. Some of these alternatives include hybrid diesel/electric engines, CNG for heavy-duty trucks, and biodiesel.

- Terminal Equipment. In 2000, the Port established a program to repower off-road terminal equipment with cleaner engines, retrofit equipment with exhaust controls, and fuel equipment with cleaner fuels. APL, Maersk, Marine Terminals Corporation, TransBay Container Terminal Inc., and Trans Pacific Container Service Corporation are participating. Together they have repowered 60 and retrofitted 130 pieces of diesel equipment. Two terminals have finished upgrading their equipment, and three terminals have switched to ultra-low-sulfur diesel.

- Electric Dredge. The Port installed an electric connection near Berth 59 to power the specially-equipped electric dredges used to construct Berths 55-59. This will eliminate a significant quantity of diesel emissions in the air. Electric connections for dredges have also been installed elsewhere in the harbor area.

TRUCKS

- Truck Parking and Support Services. Since the Port first leased the Fleet Industrial Supply Center Oakland (FISCO) from the Navy in 1994, it has provided low-cost overnight parking for trucks near the marine terminals. When FISCO was converted to container ship terminals, the Port helped many trucking companies move from neighborhood locations into the Oakland Army Base and other Port sites. Within the Port area and west of I-880, 105 acres are designated for truck and maritime support, reducing the pressure for these activities to be located in the mixed residential/industrial areas of West Oakland.

  With financial support from the Port, AB Trucking and SynchroNet Marine opened the Oakland Maritime Support Services on Maritime Street in the harbor area this fall. The center is planned to include secure overnight parking for about 20 trucking companies, custom-designed dispatching services, a DMV-certified doctor, truck insurance carrier, tire repair service, and other trucking services.

- SynchroMet. The Port has partnered with SynchroNet Marine to develop a computer service ("SynchroMet") that reduces truck traffic at the Port. SynchroMet is a tracking system that allows trucking companies to transfer empty shipping containers at locations distant from the Port. Currently most empty containers are brought to the Port by one truck, and then taken away by a different truck. SynchroMet's "virtual container yard" will reduce truck trips to and from the Port.

- Police Officers. The Port funds two City of Oakland Police Department (OPD) officers who are assigned to enforce truck parking prohibitions throughout the West Oakland neighborhood. These officers inspect trucks, ticket illegally parked trucks and work with truckers to promote safety.

- Truckers Guide. The Port and OPD distribute guides to truckers showing approved access roads to the terminals as well as general rules for transporting goods to and from the Port area.

HARBOR EQUIPMENT AND DESIGN

- Moved I-880 Closer to Port. After the 1989 Loma Prieta earthquake, the Port worked with the West Oakland community to ensure that Caltrans rebuilt the collapsed portion of I-880 closer to the Port area and further away from the residential neighborhood.

- Better Roads. With a grant from CalTrans, the Port increased Middle Harbor Road to four lanes so that trucks can move through the Port more easily and spend less time in lines. This moved some truck traffic from 14th, West Grand and 7th Streets into the Port area, reducing congestion and truck idling.

- New, More Efficient Terminals. The Port's two newest terminals, the Hanjin Terminal and the Stevedoring Services of America Terminal, were designed to move cargo and trucks through gates and terminals more efficiently. The Environmental Indicators Project noted that there was substantially less truck idling at the Hanjin terminal than at the other terminals monitored.

- Electric Cranes. The last two of the Port's diesel cranes were removed in 2002. All of the Port's 37 cranes are now electric, eliminating diesel emissions from crane operations.

- Electric Reefer Connections. The Port provided electric connections on all of the terminals so that refrigerated shipping containers can run on electricity instead of diesel while they are in the terminals. There are a total of 3,982 hard wired reefer "plug-ins" at the terminals (3,651 – 480V and 331 – 240V)

RAIL

- Rail at the Port. The Port of Oakland completed its Joint Intermodal Terminal (JIT) in spring of 2002 - a near-dock rail facility operated by Burlington Northern Santa Fe Railway Company (BNSF) as the Oakland International Gateway. This terminal eliminates the need to truck containers between the Port and the BNSF terminal in Richmond, 12 miles away. We can move goods faster and less expensively and improve air quality at the same time, by reducing truck trips and congestion on local roads and freeways.

- Rail to the Central Valley. The California Inter-Regional Intermodal Service (CIRIS), a short-haul rail shuttle, would connect the Port with the Central Valley. This would include the cities of Stockton, Modesto and Fresno, where key shipping and receiving is the most common destination for Port cargo. The short-haul rail would reduce truck traffic congestion on the freeways, thereby improving mobility for everyone. CIRIS represents innovative technology that the Port is aggressively exploring for pilot implementation. The Oakland CIRIS project is in its conceptual stage and the Port is working with potential partners, representing regional transportation agencies in the Bay Area and Central Valley along with private sector carriers (railroads) and shippers to fund the operation of CIRIS as a one or two-year pilot project.

OTHER

- Neighborhood Electric Vehicles. In 2002, the Ford Motor Company donated neighborhood electric vehicles (NEVs) to the Port, and the Port is in turn making nine of these zero-emission vehicles available to terminal operators and businesses in the Port's maritime operations' area. An additional vehicle will be used by the Port at Port View Park.

- CNG Station. The Port opened a public compressed natural gas (CNG) station at Oakland International Airport in July 2002, and is working with the City of Oakland to open a second station in the harbor area.

- Port's Own Equipment. The Port has been using ultra-low-sulfur diesel in Port-owned equipment since June 2002. This fall, the Port began testing a new diesel additive, EnviroFuel's n-TEK that is expected to further reduce emissions and to improve fuel economy.

- Technical Review Panel. Throughout the development of the air quality program, the Port has received guidance from a Technical Review Panel that includes representatives of the Bay Area Air Quality Management District, California Air Resources Board, National Resources Defense Council (NRDC), U.S. Environmental Protection Agency's Region IX, West Oakland Neighbors, and other individuals and organizations with technical expertise.

Glossary of Terms

- ***Ambient air:*** The surrounding local air.
- ***Berth:*** The water area at the waterfront edge of a wharf, reserved for a vessel—a place where a ship docks. The term is sometimes used to refer to the dock or wharf structure.
- ***Biodiesel :*** A fuel or additive for diesel engines that is made from soybean oil or recycled vegetable oils and tallow. Biodiesel can be 100% biodiesel (B100) or blended with conventional diesel in various amounts, such as B20, which is 20% biodiesel blended with 80% conventional diesel.
- ***Compressed natural gas (CNG):*** Natural gas that has been compressed to very high pressure, and is stored in high-pressure tanks.
- ***Container:*** The large shipping (or cargo) boxes that can travel as is on ships, trucks, and rail cars.
- ***Crane***: The large pieces of equipment that lift shipping containers on and off ships.
- ***DMV:*** California Department of Motor Vehicles.
- ***Dredging:*** The removal of bottom sediments in order to deepen or widen a waterway.
- ***Heavy-duty terminal equipment***: The large diesel-powered equipment that moves shipping containers around a terminal. The equipment includes, for example, toppicks, sidepicks, and yard tractors.
- ***Heavy-duty truck:*** A truck with greater than a 14,000 gross vehicle weight rating (GVWR, which includes the truck, driver, and cargo). Shipping containers are hauled on roads and highways by trucks this size.
- ***Hybrid diesel-electric engines:*** Engines that are powered by an electric motor as well as by diesel fuel. The electric motor reduces the use of diesel, and helps reduce emissions.
- ***Liquefied natural gas (LNG):*** Natural gas that has been cooled to about -260 degrees Fahrenheit. Some new, specially-designed trucks run on LNG.
- ***Neighborhood Electric Vehicles (NEVs):*** An electrically-powered vehicle that generally have a top speed of 25 miles per hour.
- ***Particulate Matter (PM)***: A mix of particles that may be solid or liquid, and range from coarse particles like wind-blown dust to fine particles from vehicle exhaust. PM-10 and PM-2.5 refer to particle sizes. PM-10 includes particles less than 10 microns in diameter (a human hair is 50 to 100 microns). PM-2.5 is a subset of PM-10 and refers to particles less than 2.5 microns in diameter. PM-10 and PM-2.5 can be readily inhaled, and some forms can cause a significant health impact.
- ***Reactive organic gases (ROG):*** Gases composed of non-methane hydrocarbons that may react with sunlight to form smog.
- ***Retrofit:*** A piece of equipment that is installed on a vehicle after it has been sold. A retrofit in the Port's air quality program is usually installed in a vehicle's tailpipe to control exhaust emissions. Types of retrofits include, for example, diesel oxidation catalysts and diesel particulate filters.
- ***Terminal:*** The place where ships load and unload shipping containers, and trucks pickup or deliver the containers.
- ***Ultra-low-sulfur diesel:*** Diesel with less than 15 parts per million (ppm) of sulfur. California diesel currently contains about 140 ppm sulfur, but ultra-low-sulfur diesel will be required nationwide in 2006.