County of Sacramento
Fleet Services Division
Green Fleet Operations, April 8, 2008
Green, Not Just another Color

- Lower Vehicle Emissions
- More Efficient Vehicles
- Cleaner Fuels
- Vehicle Maintenance Operations
- Vehicle Maintenance Facilities
- Regulatory Compliance
- Organizational Culture
Culture

- Low Emission Vehicle Acquisition Policy
  - http://www.greenfleets.org/Sacramento.html
- Board, CEO Direction and Support
- Mid Management Commitment
  - Budget and Resources
- Staff Understanding and Recognition
  - Training
  - Tools, Equipment, and Facilities
  - Recognition
  - Ownership
Regulatory Compliance

- Waste Streams
- Storm Water
- Vehicle Emissions
- Maintenance Facilities
- Safety
Waste Streams

- Used Oil - recycle
- Used Engine Coolant - recycle
- Scrap Automotive Batteries - recycle
- Universal Wastes – proper disposal
  - Flashlight Batteries, Florescent Tubes
- Spill Absorbents - recycle
- Scrap Metal - recycle
- Used Filters – recycle (steel recovery)
- Underground Sumps – hazardous waste
- Wash Water – proper disposal
- Scrap Tires – retread or recycle
Oil and Lubricants

- Re-refined Motor Oil and Hydraulic Oil
- Unocal and InterState Oil Companies
- Creates Market for Used Oils
Engine Coolant

- Recycled Engine Coolant
- California Coolant Services
Used Filters

- Crushed Filters
Reusable Oil Filters

- Sonic Cleaner and Filter

www.ftginc.com
Reusable Filter Elements
Recycling Oil and Absorbents

- CRI's Oil Absorbent Recycling Process
  - No wastewater effluents
  - No absorbent landfilling
  - No air emissions
  - Recycled oil
  - Recycled absorbent
  - Other recycled material

- www.crireycling.com
Aqueous Parts Washers
Aqueous Parts Washing Sink
Cardboard and Paper Recycling
Water Pollution Prevention

- Storm Water Pollution Prevention Plan
- Vehicle Washing and Degreasing
- Maintenance Facility Housekeeping
Chassis Wash (degreasing)
Truck and Car Washing
Covered Storage

- Drums
- Parts
- Metal
- Supplies
Maintenance Facilities

- Florescent Lighting, energy efficiency
- Skylights, improve lighting
- Insulated Glass Windows, improve lighting
- White Color for Light Reflection
- Electric Door Operators, conserve heat energy
- Vehicle Exhaust, conserve heat energy
- Evaporative Cooling, energy efficiency
- Culture, vehicle maintenance operations are important to your organization.
Maintenance Facility (doors closed)
Recognition
Training
Lower Emissions and Efficiency

- Clean Diesel Technology
  - Diesel Particulate Filters and Catalysts
- Hybrid
  - Gasoline Electric
- Alternate Fuel
  - Liquid Natural Gas, LNG
  - Compressed Natural Gas, CNG
  - Propane
  - Electric
Clean Diesel + DPF

- Ultra Low Sulfur Diesel, 15ppm sulfur
- Wall Flow, catalyzed/non-catalyzed filters
- Periodic Smoke Inspections

- Refuse, Public Fleet, Diesel Retrofit Rules
  - Best Available Control Technology
  - Meet Implementation Schedule
  - Label Vehicles
  - Keep Records
  - Annual Statement of Compliance
Data Logging Temperatures

- XR440-M Pocket Logger
DPF Retrofit Replaces Muffler

- Cleaire Longview DPF shown below
Low Temperature, Idling

- Cleaire Horizon DPF shown below
Plug in Stations for Horizon
Johnson Matthey CRT

- Proven six-plus years durability in County’s fleet.
County Door Jamb Label
Smoke Opacity Inspections

- Bosh RTT 100 Smoke Opacity Meter
Hybrid Gasoline Electric

- 150 Toyota Prius and Honda Civic gasoline electric cars in the County’s light vehicle fleet.
Compressed Natural Gas

- Honda Civic Time Fill Refueling
County Propane Dispenser

- Propane dispensers are usually provided by propane supplier at no cost.
- User must supply:
  - Power
  - Pad
  - Protection
Propane Powered Service Truck

- PTO operated crane and air compressor
- Propane welder and generator
Electric Vehicles

- 4,500 lb. Electric Forklift
- Available up to 7,500 lb or higher
Liquid Natural Gas

- County LNG Station, 4450 Roseville Rd
LNG Station Components

- Tank
- Heat Exchanger
- Station Control Panel
- Key Reader
- Dispenser
Bulk Storage Tank

- Storage tank is 44-feet tall and 10-feet in diameter.

- The tank is rated 16,400 gallons water capacity.

- Usable capacity 14,760 Gallons.
Driver Cleaning/Drying Fill Port
Frost as Nozzle is Disconnected
Zero Gravity Nozzle
Mobile LNG Tanker Truck
LNG Fuel Truck

- Diesel Engine + DPF Filter
- LNG dispenser Operated on Shore Power
Mobile Pump and Metering
Portable Lifts

- For shops not upgraded for alternate fuels
Vacuum Equipment for Tanks
LNG Pump Replacement
LNG Costs

- Station Equipment $650,000 to $800,000
- Site Improvements $350,000 to $800,000
- Tank Truck with Dispenser $350,000
- Shop Facility Improvements $30,000 to $300,000 or more
- LNG Fuel Cost per Gallon $1.27
- Diesel Fuel Cost per Gallon $3.86
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