



# CLEANUP – CLEAN AIR

## DIESEL EMISSIONS & GREEN HOUSE GAS REDUCTIONS

### Summary of Cleanup – Clean Air Pilots Projects

- **Hunters Point Naval Shipyard** (vehicle retrofit/cleaner fuel)
  - San Francisco, CA
- **Whittier Narrows Superfund Site** (pump schedule optimization)
  - Whittier, CA
- **Pemaco Superfund Site** (solar)
  - Maywood, CA
- **Hassayampa Landfill Superfund Site** (biomass)
  - Buckeye, AZ

# Renewable Success Stories

- Solar powered pumps, Apache Powder, AZ
- Landfill methane gas, OII Landfill, CA
- Solar powered water treatment units, LLNL, CA



Solar powered pumps



LFG Wellhead



LFG Wells and Collection Piping

# Diesel Emissions Reductions Retrofits are Feasible

- Boston Big Dig
  - Retrofitted over 200 pieces of construction equipment with DOCs
- New Haven I-95 Corridor
  - Retrofitted 70 pieces of construction equipment with DOCs
- New York World Trade Center
  - Retrofitted 8 pieces of construction equipment with DOCs and DPFs
- Sacramento Retrofit Project
  - Retrofitted 5 pieces of construction equipment with DPFs



# Hunters Point Naval Shipyard

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- Former shipbuilding operations
- Excavating contaminated soils



Front-loader [www.findstone.com](http://www.findstone.com)



Hunters Point [www.seifel.com](http://www.seifel.com)

# Diesel Emissions Reductions

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- 25 pieces of diesel equipment
- Engine survey
- EPA/CARB Verified Technologies
- Biodiesel



DPF retrofit

# Whittier Narrows

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- San Gabriel Valley
- Groundwater contamination (TCE, other VOCs)
- Pump and treat system expected to run at least 30 years
- Total GPM for system ~ 6,900 gpm
- Annual electricity bill projected to be \$500,000



Whittier Treatment Plant Bowlin

# Time of Use Optimization

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- Reduce pumping during on-peak hours
    - On-peak hours are times with high electricity demand (summer, daytime hours)
    - Most likely time to trigger use of dirtier energy sources
    - Most expensive electricity
- Reduce energy demand during peak hours
- Reduce energy bill



GAC filter vessels Bowlin