

# NAS NORTH ISLAND - NAVY REGION SOUTHWEST NAVY ENVIRONMENTAL LEADERSHIP PROGRAM

## COMPLIANCE

### GROUND SUPPORT EQUIPMENT AIR EMISSIONS REDUCTION

#### LEAD ACTIVITY

Naval Air Station (NAS) North Island

#### STATUS

Complete

#### MISSION

Reduce emissions created by diesel engine-driven support equipment (SE) by replacing the existing engine-driven power supplies with host facility power and redistributing the conditioned power along the flight line. Reduce hazardous waste due to maintenance on flight line SE by reducing the quantity of required equipment to service aircraft.

#### REQUIREMENT

The Clean Air Act and Executive Order 12856 requires reductions in air emissions. A method is required to reduce emissions from ground support equipment (GSE), a source of nitrogen oxides (NO<sub>x</sub>) and other emissions.

#### DESCRIPTION

In order to comply with NO<sub>x</sub> emissions levels specified by Clean Air Act regulations (including Title V permits and the Federal Implementation Plan) and the 50 percent reduction goals of Executive Order 12856, NAS North Island is replacing three GSE engine types with low-emission engines, and is installing electric power distribution systems for the GSE engines.



The three GSE units that received replacement engines are A/M27T-5 portable hydraulic power supplies ("Jennies"), A/M32C-17 mobile air conditioner (AIRCON), and NC-10C mobile electric power plants (MEPPs) (see attached figure). These mobile units have been modified with engines capable of meeting federal and San Diego County emission standards for 1996. Two prototypes of each unit were provided to Naval Air Weapons Center (NAWC) Lakehurst, in 1995, to test and evaluate their effectiveness in reducing air emissions. NAS North Island received AIRCON and MEPP units in early

1997 and is currently testing the units to evaluate their effectiveness.

The total estimated cost for modifying all three GSE engines, which included review for availability, engine selection, design, modification, and testing and evaluation, was \$700,000. The cost for selecting and procuring an appropriate engine was \$50,000 each for the Jennies and \$39,000 for the AIRCON.

The installation of an electric power distribution system, or Flight Line Electrical Distribution System (FLEDS), greatly reduces the demand for diesel-powered MEPPs. Several standard FLEDS were procured in 1994 and were installed at NAS North Island in 1995. To further enable the use of existing zero emission GSE, new "super" FLEDS are being developed under NELP. Super FLEDS will allow use of the electrically powered Jennies (A/M27T-7) and AIRCON (A/M32C 21) on the aircraft flight line. Electrically powered Jennies are currently restricted to use inside aircraft hangars. The total estimated cost to the Navy for development of the super FLEDS is \$1,250,000.



## BENEFITS

- Reduces requirement for diesel-powered GSE
- Eliminate hydrocarbon and carbon monoxide emissions.
- Reduce hazardous and flammable materials on the flight line.
- Reduce hazardous waste due to maintenance of SE.

## ACCOMPLISHMENTS/CURRENT STATUS

Date	Activity
NOV 1994	Contract to develop low-emission diesel engine modified
DEC 1994	Engine reviewed with Jennies and AIRCON contractors
FEB 1995	First engine delivered: the John Deere Straight 6
MAR 1995	Super FLEDS engineering analysis, systems requirements, site survey, and vendor survey performed
JUN 1995	Designed super FLEDS; NAS North Island Aircraft Intermediate Maintenance Department (AIMD) provided NAWC Lakehurst with two each of the Jenny, AIRCON, and MEPP
MAR 1996	Standard FLEDS system was installed in Building 1456
MAR 1997	Prototype low emission mobile air conditioners and mobile electric plants delivered to NAS North Island
SEP 1997	AIRCON and MEPP units tested to evaluate their effectiveness in reducing air emissions

MAR 1999	Super FLEDS system will be installed and tested at NAS North Island
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**FUTURE PLAN OF ACTION & MILESTONES**

Not Applicable

**COLLABORATION/TECHNOLOGY TRANSFER**

Based on information gathered from prototypes used at NAWC Lakehurst, units were installed at NAS North Island.

**BIBLIOGRAPHY**

None available

**RELATED GOVERNMENT INTERNET SITES**

[PPEP Emissions Reduction Systems \(Air\)](#)

**RELATED NAVY GUIDEBOOK REQUIREMENTS**

- 01999 Miscellaneous Clean Air Act Requirements

*UPDATED: 01/23/02*