ENVVEST
Semiannual Progress Report

30 November 2000

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1 INTRODUCTION

1.1 *ENVVEST Initiative*

On 16 March 1995, the federal government announced an initiative entitled *Reinventing Environmental Regulation*, which proposed 10 principles of regulatory reform and directed the U.S. Environmental Protection Agency (U.S. EPA) to implement 25 high priority actions. One of these was aimed at achieving regulatory reform within the Department of Defense (DoD) through a program called ENVVEST (Environmental Investment).

On 2 November 1995, the DoD and U.S. EPA signed a Memorandum of Agreement (MOA) on Regulatory Reinvention Pilot Projects, which formally established the ENVVEST program. The MOA established a framework for developing pilot programs at three to five selected DoD facilities. Vandenberg Air Force Base (AFB) was selected as the prototype facility to pilot the ENVVEST program, thereby implementing a common sense and cost-effective environmental protection program to meet regulatory requirements.

1.2 *Final Project Agreement (FPA)*

On 3 November 1997, Vandenberg AFB, U.S. EPA, and the Santa Barbara County Air Pollution Control District (SBCAPCD) signed the first, ENVVEST Final Project Agreement within the DoD; since then, only one other such agreement has been signed. The FPA states the intentions of the signatories to carry out a pilot program pursuant to the 1995 MOA by testing innovative approaches to environmental protection. Under the FPA, the Vandenberg AFB Air Quality Project XL/ENVVEST Initiative is aimed at improving air quality beyond that achieved through federal, state, and local permit programs. This multi-year implementation strategy is aimed at achieving sustainable long-term projects meeting criteria specified in the FPA.

2 PROGRAM SUMMARY

2.1 *ENVVEST Program Goal*

The ENVVEST program emphasizes regulatory compliance through pollution prevention and provides an alternative strategy to prescriptive command-and-control regulatory requirements in the form of a performance based environmental management system designed to reduce pollution. The ultimate goal of the ENVVEST Program is to implement sustainable long-term reduction initiatives while targeting ozone precursor emissions.

2.2 *ENVVEST Program Milestones*

The following ENVVEST Program milestones were developed and are identified in the FPA:

1. By 4 December 1997: Vandenberg AFB will complete the initial assessment and cost feasibility study.

2. By 30 April 1999: 30 percent of ENVVEST candidate boilers identified in milestone #1 are being retrofitted.

3. By 30 April 2000: 2 tons per year of emission reductions shall have been accomplished.

4. By 30 April 2001: 70 percent of ENVVEST candidate boilers identified in milestone #1 are being retrofitted.

5. By 30 November 2002: Vandenberg will have achieved 10 tons per year of ozone precursor reductions.

2.3 *Previous Program Progress*

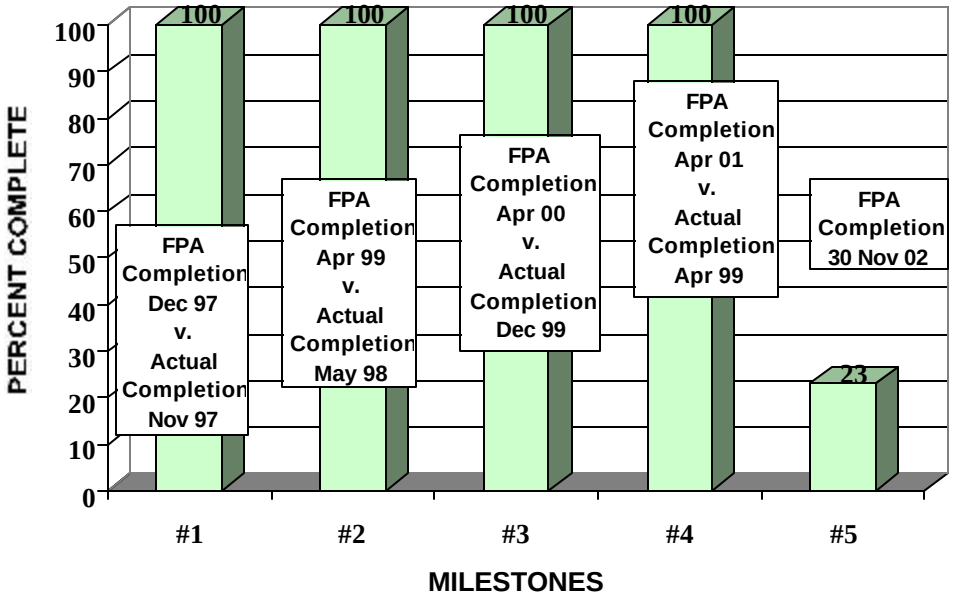
With the submittal of the 28 April 2000 ENVVEST Summary Report to the SBCAPCD, Vandenberg AFB had successfully demonstrated attainment of the first four FPA milestones. In order to fulfill the goals and objectives of the fifth and final milestone, Vandenberg AFB and the SBCAPCD had agreed to a new solution. Details of this solution are presented in the previous Semiannual Progress Report dated 28 April 2000. This solution has enabled Vandenberg AFB to implement an innovative mobile source reduction measure that traditionally would have been cost prohibitive when seeking emission reduction credits. Since then, all efforts have been redirected to implement the mobile source reduction program (referred to as the Electric Vehicle Pilot Program) and updating the 26 November 1997 ENVVEST/Rule 1301 Emission Reduction Plan for re-submittal and final approval by the ENVVEST stakeholders.

2.4 *Program Milestone Progress*

The percent completion for each milestone objective, FPA scheduled completion dates, and actual completion dates are presented in Figure 1. The current status of Figure 1 was achieved in April of 1999, however formal demonstration of this achievement was presented in the 28 April 2000 ENVVEST Summary Report to the SBCAPCD. The summary report outlined the technical methods and supporting data used to calculate emission reductions pursuant to the SBCAPCD approved ENVVEST Emission Measurement, Fuel Measurement and Emission Baseline Protocols.

With the submittal of the revised ENVVEST/Rule 1301 Emission Reduction Plan scheduled for January 2001 and its final approval, Vandenberg AFB shall be able to demonstrate attainment of the fifth and final program milestone identified in the FPA.

Figure 1
ENVVEST MILESTONE PROGRESS



3 ELECTRIC VEHICLE PILOT PROGRAM

3.1 *Electric Vehicle Assessment*

Vandenberg AFB conducted an initial survey completed on 20 August 1999 to determine the commute and transportation characteristics of the government owned and operated (Blue Fleet) vehicles. Approximately 142 vehicles were identified as prospective electric vehicle (EV) substitute candidates. The goal of the assessment was to establish optimal candidate vehicles for EV replacement based on select criteria.

At the conclusion of initial assessment, a total of 50 vehicles were considered for EV replacement. During the assessment phase of the program, Vandenberg AFB also identified Ford Ranger pickup trucks and Daimler Chrysler EPIC mini-vans as EV replacement options.

Vandenberg AFB established its own EV loaner program to test and evaluate the top 50 vehicle replacement candidates. To date, a total of 40 organizations at 17 locations have participated in the EV loaner program. The loaner program requires participants to use the EV instead of their traditional gasoline-fueled vehicle for a 2- to 4-week time period. EV user training and temporary infrastructure were provided prior to vehicle use. The vehicle use pattern and performance were documented during each trial period. At the end of each trial period, participants are asked to complete an evaluation survey. EV use and performance results were entered into a database for further evaluation.

To date, nearly 300 base personnel have received EV users training, while over 150 personnel have actually test driven an EV. Based on the results of the evaluation surveys over 65% of the drivers preferred an EV rather than their conventional gasoline-fueled vehicle.

4.2 *Electric Vehicle Infrastructure*

Based on the results of the assessment, sites for permanent infrastructure and EV assignments were determined. EV infrastructure planning began in September 1999 and has been an ongoing since. The following is a facility-by-facility review of permanent EV infrastructure installed to date.

3.2.1 Bldg. 7015 Installation

A total of three charging stations were installed at Bldg. 7015 supporting two Daimler-Chrysler EPIC mini-vans and one Ford Ranger pickup.

Electrical Sub-panel

Above is a new electrical distribution sub-panel to support a dedicated circuit for each charger.

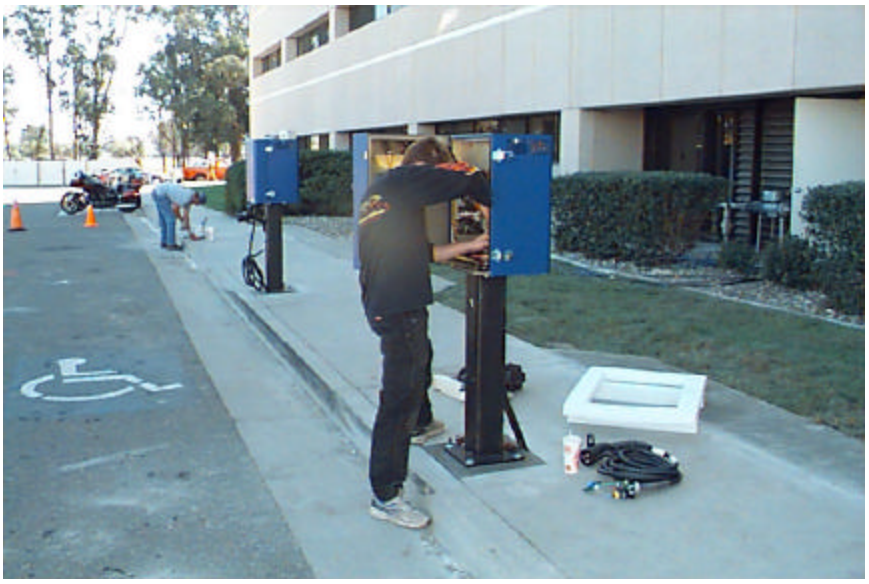
Installation of Conduit

Above ground conduit providing power to each charging station.

Concrete Work

Concrete footers were poured for each pedestal mounted charging station and sidewalk widths were increased to meet ADA requirements for ease of handicap access around charging stations.

Charger Installations



Hard wiring the Lockheed Martin charging station, which requires a dedicated three-phase circuit rated at 208V and 60 amps.

Meter Installation

Dedicated utility meters were installed to monitor power consumption for each vehicle type.

Completed Installation at Bldg. 7015

This site has been operable since November 1999 servicing both the Environmental and Contracting offices on base.

3.2.2 Bldg. 11442 Installation

This installation consisted of one Lockheed Martin charger for an EPIC mini-van assigned to the head office of the Civil Engineering Squadron. The mini-van fulfills a variety of purposes such as tours conducted the Deputy Civil Engineer, construction site walks, inspections, and mail courier for the Orderly Room.

Installation of Under Ground Conduit

An existing electrical sub-panel was tapped at Bldg. 11442 to provide a single phase 240V and 60 amp service for charging.

Footer Installation

A concrete footer was installed to support a pedestal mounted charging station.

Completed Installation at Bldg. 11442

This charging station was completed and has been operable since November 1999 servicing the Civil Engineering community.

3.2.3 Bldg. 10728 Installation

This site is resident to the Transportation Squadron that is assigned one EPIC mini-van supporting the Base taxi service and a Ranger EV used for carrying supplies and also serves as a replacement vehicle to other organizations when their EV is being serviced.

Installation of Under Ground Conduit

Under ground conduit providing power to each charging station.

Concrete Work

Concrete footers are poured to support the charging stations, a small step-down transformer and safety ballards around the installation.

Completed Installation at Bldg. 10728

This site has been operable since November 1999 and servicing the Transportation community.

3.2.4 Bldg. 11439 Installation

This site is the largest operable EV fleet application assigned to a single facility on base. Currently 10 Ford Ranger EV trucks are assigned to the 30th Civil Engineering Squadron's Operations Flight.

Under Ground Conduit Installation

Schedule 40 PVC conduit was installed to service 12 charging stations and additional service for possible future expansion at the site.

Concrete Pad for Transformer Installation

Due to the electrical load requirements to service 12 charging stations, a dedicated three-phase 150 kVA step down transformer was installed to service the site.

Concrete Footers & Sidewalk Installation

Concrete footers were installed at the base for structural support of each pedestal mounted charging station. Additionally, a sidewalk was poured for ease of access to each charger for service.

Completion of Under Ground Work

At this stage, all the under ground conduit was install to service each charging station, 150 kVA transformer, and an electrical distribution panel equipped with a utility meter to monitor service.

New Installation at Bldg. 11439

This EV fleet services a variety of applications for the Operations Flight. Some vehicles are used by Quality Assurance Evaluators who oversee the performance of various service contracts, e.g., painting contractors, landscape contractors, military family housing maintenance contractors, etc., on base. Others are assigned to facility maintenance foremen for work crew oversight and job site inspections. Finally, one is assigned to the Chief and his Deputy of the Operations Flight for administrative functions.

3.2.5 Bldg. 8317 Installation

A single wall-mount charging station was installed to service a Ranger EV for the Hazardous Material Pharmacy. The truck is used to pickup and deliver hazardous materials to AF customers on base.

New Installation at Bldg. 8317

3.2.6 Bldg. 9327 Installation

Two wall-mount chargers were installed to service Rangers for a tenant organization on base. The trucks are used to perform maintenance duties in support the ICBM programs on Vandenberg AFB.

New Installation at Bldg. 9327

3.2.7 Bldg. 6601 Installation

Two wall-mount chargers were installed for the 576th Flight Test Squadron (FLTS). These Rangers are used to frequent the Launch Facilities during follow-on test and evaluation of the ICBM programs.

New Installation at Bldg. 6601

3.2.8 Planned Installations

Vandenberg AFB has two more installation sites currently underway. First, two chargers are planned for Bldg. 11777 with EV assignments to the Traffic Management Office and the 30th Services Squadron for administrative functions. This installation shall be complete and operational in January 2001. Second, a much larger installation supporting 20-30 EV applications at the new Western Range Operations Center complex. This site shall also host an intelligent vehicle management system with a suite of shared EV resources. Vandenberg AFB is currently forming a partnership to implement and demonstrate a shared-use vehicle management system in a multi-user setting. The details of this project shall be discussed during the next project report.

Two more installations are planned, but not yet underway at Bldg. 12000 and 1900. Bldg. 12000 is resident to the Communication Squadron's personnel where one Ranger EV shall be assigned for general-purpose applications. Bldg. 1900 is a remote refurbishment facility used by the caretakers of the ICBM programs. This is currently the only installation planned to augment their home base charging system at Bldg. 9327.

3.3 Electric Vehicle Program Summary

Vandenberg AFB currently has a total of twenty-five (25) charging stations in operation which service a fleet of twenty-two (22) Ford Ranger trucks and four Daimler-Chrysler EPIC minivans. During calendar year 2001, Vandenberg is planning to nearly double its EV fleet size and by June

2001 should have the infrastructure in place to do so. The future planned EV fleet shall consist of more Ford Rangers and the soon to be released Th!nk City vehicles.

4 ENVVEST PROGRAM SUMMARY

In order to fulfill the goals and objectives of the FPA the following actions are required on behalf of each XL/ENVVEST stakeholder.

4.1 Vandenberg AFB Stakeholder Requirements

Vandenberg AFB has been working over the last several months on updating the original emission reduction plan submitted to the SBCAPCD pursuant to the first FPA milestone requirement. As previously mentioned, the original plan was partially approved by the SBCAPCD on 20 February 1998. This plan is being updated to reflect inclusion of the Electric Vehicle Pilot Program and the application of emission reduction credits previously discussed in the 28 April 2000 progress report. The updated plan will be submitted to the SBCAPCD in February 2001.

4.2 SBCAPCD Stakeholder Requirements

Upon receipt of the updated emission reduction plan, the SBCAPCD shall be asked to review, approve, and forward the plan to EPA Region IX for inclusion in the SIP. Based on preliminary meetings with the SBCAPCD and their verbal support on this alternative implementation strategy, Vandenberg AFB continues to invest ENVVEST Program funds into the expansion of the EV Pilot Program.

4.3 EPA Region IX Stakeholder Requirements

Upon receipt of the District approved emission reduction plan, Region IX shall be asked to include the plan into the SIP for purposes of fulfilling all ENVVEST Program goals and objectives. SIP approval will insure the success of the first ENVVEST Program on behalf of all stakeholders.