

September 30, 1999

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SUBJECT: Audit Report on Opportunities to Increase Savings Through the Use of
Natural Gas Vehicles (Report Number CA-AR-99-001)

This report presents the results of our review of the extent to which compressed natural gas has been used in United States Postal Service (USPS) vehicles and the process for purchases made under the USPS Alternative Fuels Program (Project Number 99RA008CA000).

The audit revealed that the USPS could increase savings from the Alternative Fuels Program by increasing usage of compressed natural gas in USPS vehicles. Usage increase can be achieved by re-deploying vehicles, providing incentives for use of natural gas, working with public utilities to establish additional onsite natural gas stations and considering whether USPS can fund and operate on-site natural gas stations. We also found that the purchasing process for alternative fuels needed improvement. Management agreed with our recommendations and has initiated action to address the issues in this report. Management's responses and our evaluation of the responses are attached to the report.

We appreciate the cooperation and courtesies provided by your staff during the review. If you have any questions or need additional information, please contact [REDACTED], [REDACTED] me at (703) 248-2300.

Sylvia L. Owens
Assistant Inspector General
for Revenue/ Cost Containment

Attachment

cc: Norman E. Lorentz
Office of Deputy Postmaster General
Alan B. Kiel
John R. Gunnels

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EXECUTIVE SUMMARY

Introduction

We completed an audit of the use of compressed natural gas in United States Postal Service (USPS) vehicles and purchases made under the Alternative Fuels Program. The objectives of the audit were to evaluate the extent to which compressed natural gas has been used in USPS vehicles and the process for purchases made under the USPS Alternative Fuels Program.

The USPS Alternative Fuels program has focused on compressed natural gas, methanol and ethanol fuels, liquid propane gas, and electric power. Our audit focused on USPS vehicles that had been converted to use compressed natural gas.

Results in Brief

We identified that the USPS had been saving about \$228,000 per year by increasing the use of compressed natural gas at the on-site fueling locations. However, based upon USPS engineering maintenance and fuel savings data, we estimated that the USPS could increase savings to over \$3 million per year by increasing usage of compressed natural gas in 7,300 vehicles to the 90 percent goal in the USPS Alternative Fuel Vehicle Strategic Plan. Increased use of compressed natural gas would also be consistent with the USPS Alternative Fuels Program and could allow recovery of the \$13.25 million cost expended to convert the vehicles to operate on compressed natural gas. We also found contract management weaknesses with some alternative fuels-related contract files.

Regarding the use of compressed natural gas, the 7,300 converted vehicles have been operated only about 27 percent of the time on compressed natural gas. The most significant use of compressed natural gas was at USPS locations with on-site fueling capabilities. For example, at six sites where there was on-site compressed natural gas, this type of fuel was used an average of 94 percent of the time in converted vehicles. Conversely, at two sites where compressed natural gas was not available, 124 vehicles were converted at a cost of about \$380,000, but none of the vehicles had been operated on compressed natural gas following conversion.

USPS alternative fuels program officials stated that their program goal of 90 percent usage of compressed natural gas had not been achieved because there was no strategy to re-deploy vehicles where use of compressed natural gas would be optimized and no management evaluation criteria existed to hold managers accountable for using alternative fuels in USPS vehicles. We believe the USPS should be able to increase the use of compressed natural gas by (1) re-deploying vehicles where they will more likely be fueled by compressed natural gas, (2) including the alternative fuels program in the "CustomerPerfect!" goals as an incentive to postal employees to use compressed natural gas, (3) working with public utilities to establish additional onsite natural gas stations, and (4) reconsidering whether USPS should fund or operate onsite natural gas stations.

Regarding contract management weaknesses, our review of sampled contract files disclosed that some of the files could not be located or the files were incomplete. Six of 22 contract files were not located and eight contract files that were located did not contain preaward documentation necessary to support the solicitation and contract award process. The inability to locate these contract files is a management control weakness that places the USPS at risk of being unable to meet potential Freedom of Information Act requests and exposes the USPS to potential litigation.

**Summary of
Recommendations**

We recommended that the:

- Vice President, Engineering, consider revising the policy on alternative fuel infrastructure to allow funding or operation of on-site natural gas stations and working with individual public utilities to increase on-site natural gas stations.
- Manager, Delivery, request that the Chief Operating Officer and Executive Vice President include alternative fuel usage as a "CustomerPerfect!" evaluation criteria.
- Manager, Delivery Vehicle Operations, re-deploy compressed natural gas vehicles to maximize usage.
- Vice President, Purchasing and Materials, improve controls over contract files.

**Summary of
Management's
Comments**

Management agreed with all of the recommendations. Specifically, management stated that Engineering, Delivery and Customer Service Equipment, is taking the lead on conducting a more in-depth economic analysis to determine whether and when on-site fueling is an advantageous choice. In addition, management stated appropriate elements would be added to CustomerPerfect! indicators to measure alternative fuel usage and after a thorough review of the current usage, vehicles will be re-deployed to maximize utilization. Finally, management is emphasizing and enforcing procedures relating to the closeout of files and maintenance of documentation in contract files with all buyers.

We summarized these comments in the report and included the full text of the comments in the appendix.

**Overall Evaluation of
Management's
Comments**

Management's planned or implemented actions are responsive and once completed, should address the issues identified in this report.

INTRODUCTION

Background

The USPS is required to comply with requirements in the Clean Air Act, the Energy Policy Act of 1992, and related state and local environmental laws. The USPS primary response to these Acts was to establish an Alternative Fuels Program to increase the use of vehicles operating on alternative fuels such as methanol, liquid propane gas, electricity, and compressed natural gas. As part of the Program, about 7,300 Long Life Vehicles were converted to use compressed natural gas at a cost of \$13.25 million. USPS estimated that conversion would reduce yearly maintenance costs for each vehicle by \$224 and reduce fuel costs for these vehicles by 50 percent. The USPS strategic goal was to increase compressed natural gas use to 90 percent of the fuel consumed by the 7,300 converted vehicles by 1998.

Objective, Scope, and Methodology

The objectives of the audit were to evaluate the extent to which compressed natural gas was used in USPS vehicles and the process for purchases made under the USPS Alternative Fuels Program. We statistically sampled twenty-two alternative fuels contracts, visited nine vehicle maintenance facilities, and reviewed vehicle maintenance and fuel usage records. We also held discussions with USPS managers involved in the alternative fuels program. Our scope was limited because the purchasing staff at Headquarters did not locate six of the contracts in our sample.

We obtained fuel usage data on converted compressed natural gas alternative fueled vehicles that was available for the time period October 12, 1998, through June 18, 1999.¹ We limited our review to Postal facilities where compressed natural gas vehicles were located during the period we reviewed.

Our audit was conducted from January through August 1999 in accordance with generally accepted government auditing standards and included such tests of internal controls, as we considered necessary under the circumstances. We discussed our conclusions and

¹ This fuel data included gasoline and compressed natural gas cost and consumption.

observations with appropriate management officials and included their comments, where appropriate.

Prior Audit Coverage

The USPS Inspection Service completed an audit of Environmental Management Policy in September 1996. We followed up on management's actions regarding the alternative fuels program and determined that management implemented corrective actions in response to the recommendations in the report.

AUDIT RESULTS

Alternative Fuels Program Opportunities

We concluded that the USPS has an opportunity to increase savings in excess of \$3 million per year if the compressed natural gas goal of 90 percent is achieved for the 7,300 converted vehicles. USPS alternative fuels program officials stated that their goal of 90 percent had not been achieved because there was no strategy to re-deploy vehicles where use of compressed natural gas would be optimized and no management evaluation criteria existed to hold managers accountable for using alternative fuels in USPS vehicles. We believe the USPS should be able to increase the use of compressed natural gas by (1) re-deploying vehicles where they will more likely be fueled by compressed natural gas, (2) including the alternative fuels program in the "CustomerPerfect!" goals as an incentive to postal employees to use compressed natural gas, (3) working with public utilities to establish additional onsite natural gas stations, and (4) reconsidering whether USPS should fund or operate onsite natural gas stations. Increased use of compressed natural gas would also be consistent with the USPS alternative fuels program and could allow recovery of the \$13.25 million cost of converting the vehicles.

A December 1993 report issued by the USPS Vice President, Engineering, concluded that compressed natural gas vehicles cost \$2,000 to \$2,500 more than gasoline vehicles. However, maintenance costs for compressed natural gas vehicles are \$224 less than gasoline vehicles each year. In addition, fuel costs for these vehicles are reduced by 50 percent. Consequently, USPS issued a policy that dual fuel postal vehicles operate exclusively on compressed natural gas. The report indicated that local postal management was responsible for monitoring fuel consumption.

In 1994, the Vice President, Engineering, requested and received approval from the Postmaster General to purchase and install compressed natural gas conversion kits at a total cost of \$6.35 million. Based on an October 17, 1994 Decision Analysis Report, savings of \$4.4 million in maintenance and \$4.8 million in fuel consumption could be saved by installing and using the conversion kits.

A USPS alternative fuel vehicle strategic plan, developed in July 1997, established goals and objectives for using alternative

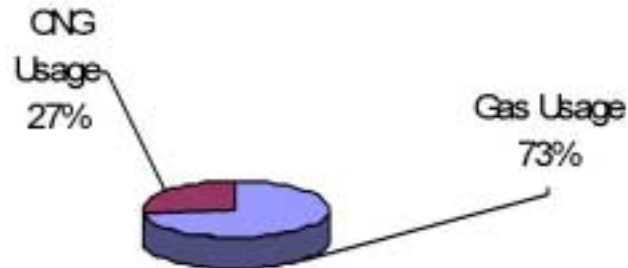
fuels, including (1) relocating vehicles that have less than a 70 percent utilization rate to areas having higher usage rates, (2) educating compressed natural gas operators and supervisors on the environmental, operational, and economic benefits (e.g. Economic Value Added) of using compressed natural gas instead of gasoline, and (3) identifying and implementing appropriate incentives to encourage compressed natural gas vehicle operators and vehicle managers to use compressed natural gas rather than gasoline. To ensure maximum use of alternative fuels, the strategic plan identified the Manager, Delivery Vehicle Operations, in coordination with Area, District, and local Postmasters as having the responsibility to ensure that all alternative fueled vehicles were operated using alternative fuel and to relocate vehicles when necessary.

The Vice President, Engineering, issued Management Instruction AS-550-1999-4, Alternative Fuels Program, dated March 5, 1999, implementing the alternative fuel vehicle strategic plan. These instructions require each USPS site to maximize alternative fuel use.

The USPS normally does not pay for fueling infrastructure. Instead, alternative fuel providers are encouraged to build or add fueling infrastructure to existing facilities that are in proximity to the USPS location. The USPS preferred method is to work with local utility companies to provide an on-site refueling infrastructure. The purpose is to alleviate the maintenance, economic, and liability concerns associated with Postal Service owned or operated refueling infrastructure. When procured off-site, the preferred method is to procure fuel from a nearby commercial station.

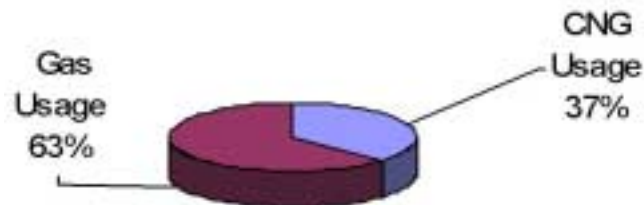
As a result of the audit, we found that USPS was using compressed natural gas in its 7,300 converted vehicles at a rate of 27 percent nationally which was 63 percent short of its 1998 goal of 90 percent use of compressed natural gas in converted vehicles.

National Fuel Usage From October 12, 1998 - June 18, 1999



We also found that the USPS had about 2,700 compressed natural gas vehicles at 49 on-site natural gas fueling stations. At these sites, the vehicles were operating 37 percent of the time on compressed natural gas, which we estimated based on USPS cost data, resulted in annual gasoline cost savings of about \$228,000.

On-Site Gas Fueling From October 12, 1998 - June 18, 1999



Compressed Natural Gas Usage

In order to determine ways to improve the alternative fuels program, in 1999, the USPS Environmental Management Policy Office conducted a survey of Postmasters operating compressed natural gas vehicles. Thirty-one percent of the Postmasters surveyed were somewhat satisfied in the compressed natural gas vehicle's ability to carry out mail delivery and 22 percent were very dissatisfied. Varying comments were given by 43 percent of those surveyed. While the survey showed some discomfort with, and reluctance to the use of compressed natural gas, we found an example where management initiatives in the Suncoast District resulted in increased compressed natural gas use cost savings.

Specifically, the Manager, Operations Programs Support, at the

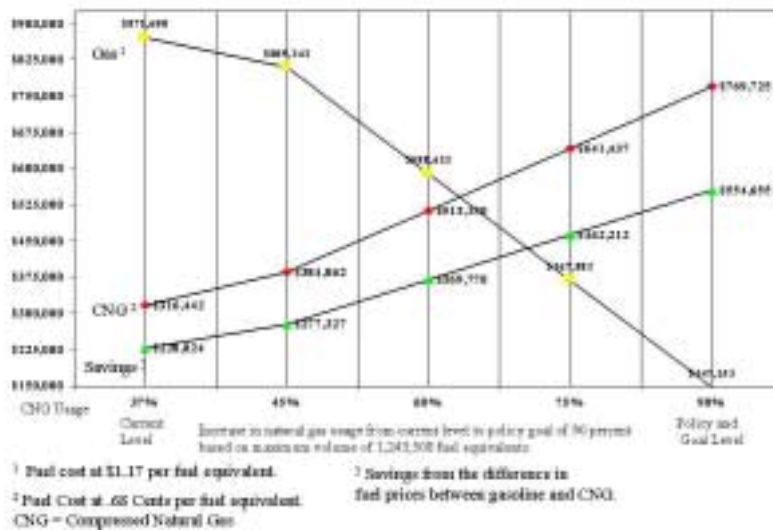
Suncoast District, sought to improve alternative fuel usage by instituting local policy requiring mandatory use of alternative fuels at stations with compressed natural gas vehicles. An analysis of the fuel use before and after this initiative confirmed implementing alternative fuel policy results in substantial savings. Before the initiative, Suncoast District use was about 65 percent gasoline and 35 percent compressed natural gas. After the initiative, compressed natural gas use in the District increased to 80 percent, resulting in savings of \$27,564 for the 9-month period.

We also identified several facilities which operated almost exclusively on compressed natural gas. The following table shows the top six vehicle maintenance facilities and post offices with the highest compressed natural gas usage.

Vehicle Maintenance Facility	Post Office	Vehicles	Gasoline Usage (gallons)	Gasoline Costs	Natural Gas Usage (gallons)	Natural Gas Cost	Natural Gas Percentage
Hartford	New Britain	71	12.5	\$ 15	15,386	\$9,235	99.9
New Haven	East Haven	61	11.6	15	8,404	3,953	99.9
Huntington Beach	Main	118	106.0	141	35,442	25,801	99.7
Dulles	Woodbridge	28	65.2	69	874	547	93.0
Huntington Beach	Irvine	106	6,290	8,241	43,556	31,797	87.4
San Diego	Chula Vista	109	5,325	7,037	34,387	30,951	86.6

The increased fuel savings from increasing the compressed natural gas usage from the current on-site level of 37 percent to the intended 1998 goal level of 90 percent will derive about \$554,655 per year. This savings translates to a 45 percent reduction in the amount the USPS is currently paying in fuel at the on-site locations. We believe these benefits could be realized at other locations if additional on-site capabilities existed. Although we only reviewed fuel usage, additional benefits will occur in lower maintenance costs associated with compressed natural gas vehicles.

On-Site Fuel Cost Savings From Increased Natural Gas Usage



Redeployment Strategy The USPS deployment objective is to deploy vehicles in areas where compressed natural gas use can be optimized. Compressed natural gas deployments should be targeted at those sites where a commercial refueling infrastructure is readily available, cost effective, and convenient to use. The goal was to use 90 percent compressed natural gas by 1998.

The Manager, Delivery Vehicle Operations, agreed that USPS has concerns with increasing vehicle utilization. The position of Manager, Delivery Vehicle Operations, was recently filled in 1999 and had been vacant since 1992. We believe an analysis of re-deployment should be completed. Currently, there are no plans for relocating the 124 vehicles we identified that have not been using compressed natural gas since their conversion.

The USPS established an alternative fuels program but the policy has not been fully implemented. Substantial benefits could be derived from the cheaper compressed natural gas fuel costs compared to gasoline. In addition, the public image of the USPS converting to alternative fueled vehicles and their aggressive usage of the fuel will promote an intangible public benefit that is unquantifiable, but shows the USPS is committed to being environmentally responsible.

Recommendations	We recommend that: 1. The Vice President, Engineering, reconsider current policy on not funding a compressed natural gas infrastructure in support of alternative fueled vehicles.
Management's Comments	Management conditionally agreed with the recommendation and stated that Engineering, Delivery and Customer Service Equipment will lead an in-depth economic analysis to determine whether and when on-site fueling is an advantageous choice.
	2. The Manager, Delivery, should request that the Chief Operating Officer and Executive Vice President include alternative fuel usage within the environmental program as a Voice of the Business management criteria.
Management's Comments	Management agreed with the recommendation and stated that, as part of the strategic planning process, appropriate indicators will be recommended for inclusion in CustomerPerfect!
Recommendation	3. The Manager, Delivery Vehicle Operations should assist in maximizing the benefits derived from aggressively using alternative fuel by establishing and implementing an aggressive re-deployment strategy where usage is maximized.
Management's Comments	Management agreed with the recommendation and stated that after a thorough review of the current usage by location, including all relevant facts, vehicle redeployments will be requested to maximize utilization.
Evaluation of Management's Comments	Management's comments are responsive to our recommendations.

**Contract File
Documentation**

We statistically sampled 22 alternative fuels contracts. Headquarters Purchasing personnel could not find six contract files and eight contract files were incomplete because they did not include pre-award documentation.



Contracting personnel stated that they did not know why the contract files were missing. However, the contracting officer suspected the contract files were closed and inadvertently omitted from the content box indices used to reference and retrieve stored contract files. We noted that they had procedures for recording the closeout of files and maintaining pre-award documentation in contract files. The absence of contract files and pre-award documentation exposes the USPS to risks of potential litigation. Specifically, USPS may not be able to respond to Freedom of Information Act requests if they cannot locate files. In addition, the USPS has a fiduciary responsibility to ensure that contractor proprietary data is accounted for, safeguarded, and not susceptible to unauthorized access.

Recommendation

We recommended that the Vice President, Purchasing and Materials:

4. Enforce procedures for recording the closeout of files and maintaining pre-award documentation in contract files.

**Management's
Comments**

Management agreed with the recommendation and procedures for recording closeout of files and maintaining pre-award documentation in contract files will be emphasized and enforced with all buyers.

**Evaluation of
Management's
Comments**

Management's comments are responsive to our recommendation.

WILLIAM J. DOWLING
VICE PRESIDENT
ENGINEERING



September 24, 1999

SYLVIA OWENS

SUBJECT: Draft Audit Report on Opportunities to Increase Savings Through the Use of Natural Gas Vehicles

Environmental Management Policy has reviewed the subject report.

Recommendation 1:

The Vice President, Engineering, should re-consider current policy on not funding compressed natural gas infrastructure in support of alternative fueled vehicles.

Management Response

Conditionally agree. We support efforts to improve natural gas fuel utilization in the existing natural gas vehicle fleet provided that these efforts are economically and operationally justified. We believe the OIG report may have only considered fuel costs and does not encompass all factors necessary in order to determine if current infrastructure policy warrants revision. A revision of the policy should be based upon a compelling business reason stemming from the results of an updated cost/benefit analysis. Engineering conducted an economic analysis of on-site infrastructure for CNG refueling in the past. Based on the cost proposals from gas companies at that time, we found that it was not economical to build CNG stations on site. Engineering, Delivery and Customer Service Equipment, is taking the lead on conducting a more in-depth economic analysis that will determine whether and when on-site fueling is an advantageous choice. This analysis will include:

- Examination of alternative approaches that might make on-site infrastructure economical when it would not be otherwise, e.g., purchasing larger OEM natural gas vehicles to complement existing CNG fleet in order for the greater fuel volume to help recoup the infrastructure investment. Examination of complications associated with legal requirements for public access to alternative fuel refueling facilities.
- As part of a comprehensive approach to improving the natural gas vehicle fleet, the most economical option for older and less reliable CNG kits may be to replace them. This alternative should be analyzed for value to the USPS.
- In addition, we request clarification of the assumptions and methodologies behind all computations and savings estimates provided in the report. Reviewing these assumptions and methodologies will assist us in evaluating the OIG's findings and in the economic analysis described above.

With these considerations, the subject report can be a useful document to guide the improvement of the natural gas vehicle fleet.

A handwritten signature in black ink, appearing to read "W. Dowling".

William J. Dowling

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September 21, 1999

SYLVIA L. OWENS
ASSISTANT INSPECTOR GENERAL FOR
REVENUE/COST CONTAINMENT

SUBJECT: Transmittal of Draft Audit Report on Opportunities to Increase
Savings Through the Use of Natural Gas Vehicles
(Report Number CA-AR-99-Draft)

As requested, Delivery and Vehicle Maintenance have reviewed the subject report for disclosure under the Freedom of Information Act (FOIA) with regard to the proposed corrective actions and recommendations. We find no difficulty with release of the information contained in the report as it applies to the FOIA.

As a general statement, we concur with the recommendations made in the report. However, we suggest that the new title of "Manager, Delivery Vehicle Operations" be applied to report references of "Manager, Vehicle Maintenance."

Our response to recommendation #2, page number 8 of the draft report, suggesting "The Manager, Delivery should request that the Chief Operating Officer and Executive Vice President include alternative fuel usage within the environmental program as a Voice of the Business management criteria.," is as follows:

As opportunities for feedback into requesting new elements of CustomerPerfect! indicators are solicited as a part of the strategic planning process, the Manager, Delivery will recommend an appropriate indicator(s) to help drive vehicle operations' performance in the field. This recommendation will include a measure of usage for alternative fuels and will be coordinated with the Office of Environmental Management.


Our response to recommendation #3, page number 8 of the draft report, suggesting "The Manager, Vehicle Maintenance should assist in maximizing the benefits derived from aggressively using alternative fuel by establishing and implementing an aggressive re-deployment strategy where usage is maximized.," is as follows:

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After completion of a thorough review of the current usage, by location, including all relevant facts on infrastructure, parts etc., the Manager, Delivery Vehicle Operations will request vehicle redeployments to the appropriate District Managers, through Area management, to maximize utilization.

If you have further questions, feel free to contact either of us.


Michael F. Spates
Manager
Delivery


David A. Clark
Manager
Delivery Vehicle Operations

**Opportunities to Increase Savings Through
the Use of Natural Gas Vehicles**

CA-AR-99-001

HEADQUARTERS PURCHASING



September 22, 1999

155
9/23/99
KEITH STRANGE
VICE PRESIDENT, PURCHASING AND MATERIALS


SYLVIA OWENS
ASSISTANT INSPECTOR GENERAL, REVENUE AND COST CONTAINMENT

SUBJECT: Transmittal of Draft Audit Report on Opportunities to Increase Savings
Through the Use of Natural Gas Vehicles
(Report Number CA-AR-99-Draft)

We have reviewed the subject report, and following your recommendation, procedures for recording the closeout of files and maintaining pre-award documentation in contract files will be emphasized and enforced with all buyers.

In addition, contract file handling is being reviewed to determine if any changes are needed to ensure that contract data is compiled and retained as required by current procedures.

For further information, please contact Peter Schwind at (202) 268-4121.


Phillip R. Baldwin
Manager

**Major Contributors to [REDACTED]
This Report**

