

**Prepared for the  
Mobile Source Air Pollution Review Committee (MSRC)  
Under the AB 2766 Discretionary Fund Work Program  
Final Report**

**Construction of a Compressed Natural Gas Fueling Station  
Bear Valley Unified School District  
Contract #12085  
June 25<sup>th</sup>, 2014**

This grant was for the maintenance facility modifications and was necessary and associated with the existing grant #MS 11079 that was for the construction of our CNG fueling station. As such, you will see much duplication in this report (maintenance facility modifications) from that report (construction of our CNG fueling station).

**Acknowledgements:** There were contributions by several people and organizations toward this project that enabled its success. First, there was the MSRC with the offering and administration of this grant. This was our district's first experience with a grant like this and we needed much support and guidance through the process. Special mention goes to Mrs. Cynthia Ravenstein and Mr. Matt Mackenzie of Contracts Administration for guiding us through the process with excellent customer service, professionalism and patience. We greatly appreciate their efforts and assistance. We also acknowledge Mr. Greg Pettis, MSRC Chair, for being one of our featured speakers at our groundbreaking for the CNG Fueling Station on October 29, 2013.

Recognition also goes out to Mr. Terry Planz and Mrs. Gail Hastain of our district in their involvement in the vision, planning and organization of this project. And lastly, recognition to Mrs. Kim Crawford, Mr. Andrew Beggs and Mr. Stephen Cacace of Siemens Industry, Inc. for their involvement in the design, engineering and construction of this project.

This report was submitted in fulfillment of Contract #12085 and for the maintenance facility modifications associated with the construction of a natural gas fueling station by Bear Valley Unified School District under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of October 29, 2013.

**Disclaimer:** The statement and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution Reduction Review Committee (MSRC) or the South Coast Air Quality Management District (SCAQMD). The mention of commercial products, their sources or their uses in connection with material reported is not to be construed as either an actual or implied endorsement of such products.

**Project Description & Work Performed:** The District contracted with Siemens Industry, Inc. to design, engineer, construct and install all the necessary alterations and equipment associated with the maintenance facility modifications. We chose Siemens based upon their expertise in the industry as well as their ability to deliver a "turnkey" process. More specifically, they could design, engineer and construct all aspects of the maintenance facility modifications and the CNG fueling station. This avoided any disconnect of the design, engineering and construction that sometimes occurs when architects, engineers and/or contractors disagree. It was successfully completed on October 29, 2013 and within budget. The shop is fully compliant and safe and the CNG fueling system is fully operational and functioning effectively.

The original vision was brought forth by Mr. Terry Planz and Mrs. Gail Hastain of Bear Valley Unified School District (BVUSD). Through these individuals, the district screened two contractors including Siemens Industry, Inc.; and ultimately it was determined that the best fit for our district was Siemens.

Throughout the planning, design, and engineering phases, we kept in mind the future potential of expanding the system. Considerations were made addressing this in terms of the location of the equipment and necessary modifications to the maintenance facility. Potential expansion includes, but is not limited to, our own district use and a public station(s).

The basic modifications associated with the maintenance facility were installation of a gas detection system and alarms, installation of new infrared heaters and associated control system(s) and installation of an upgraded maintenance and office door. As previously stated, the maintenance facility modifications and the CNG fueling station have been fully functional since October 29, 2013.

**Problems Encountered:** I am most pleased to report there we no problems encountered. I believe this was due to the quality of our contractor, Siemens Industry, Inc. and the on-going, straight forward and consistent communication of all parties.

**Emissions Benefits:** Both the maintenance facility modifications and the installation of the CNG fueling stations are part of our program to reduce emissions into the atmosphere. We do not have any specific data as to the reduced emissions of our new CNG buses as compared with our older and recently replaced non-compliant diesel buses. However, there are numerous studies that support the general statement that the emissions from new CNG buses are substantially less than those of older, non-compliant diesel buses. The quantification we are using is Diesel Fuel Gallons Displaced by CNG. The following tables reflect this measurement for the months of October 2013 – February 2014.

**Table 1: Data for October 2013**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	6,426	6,674	48	9	5	8	5
16	2,503	2,591	91	9	5	8	5
17	2,541	2,850	309	9	3	10	3
18	2,457	2,955	498	9	7	6	7
26	2,486	2,550	64	9	0	Not CHP Approved	0
<b>Diesel Fuel Gallons Displaced by CNG</b>							202

**Table 2: Data for November 2013**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	6,674	7,464	790	18	15	3	15
16	2,594	3,756	1,162	18	16	2	16
17	2,850	4,077	1,227	18	16	2	16
18	2,955	3,131	176	18	2	16	2
26	2,550	3,587	1,037	18	17	1	17
<b>Diesel Fuel Gallons Displaced by CNG</b>							878.4

**Table 3: Data for December 2013**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	7,464	7,789	325	14	2.5	11.5	2.5
16	3,756	4,059	303	14	1	13	1
17	4,077	5,232	1,155	14	13	1	13
18	3,496	3,496	0	14	0	14	0
26	3,587	4,582	995	14	14	0	14
<b>Diesel Fuel Gallons Displaced by CNG</b>							555.6

**Table 4: Data for January 2014**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	7,619	8,486	867	14	14	0	14
16	4,059	4,059	0	14	0	14	0
17	5,105	6,299	1,194	14	14	0	14
18	3,496	3,496	0	14	0	14	0
26	4,448	5,467	1,019	14	14	0	14
<b>Diesel Fuel Gallons Displaced by CNG</b>							616

**Table 5: Data for February 2014**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	8,486	9,270	784	18	18	0	18
16	4,059	4,059	0	18	0	18	0
17	6,299	7,556	1,257	18	18	18	18
18	3,496	4,986	1,490	18	19	0	18
26	5,467	6,515	1,048	18	17	1	17
<b>Diesel Fuel Gallons Displaced by CNG</b>							915.8

**Table 6: Data for March 2014**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	9,270	9,975	705	15	15	0	15
16	4,059	4,204	145	15	0	15	0
17	7,556	8,642	1,086	15	15	0	15
18	4,986	6,243	1,257	15	15	0	15
26	6,515	7,559	1,044	15	15	0	15
<b>Diesel Fuel Gallons Displaced by CNG</b>							847

**Table 7: Data for April 2014**

<b>Bus #</b>	<b>Mileage Beginning</b>	<b>Mileage End</b>	<b>Mileage Total</b>	<b>Days Schools in Session</b>	<b>Days in Use</b>	<b>Buses not in Service</b>	<b>Days Fueled</b>
15	9,975	10,763	788	17	17	0	17
16	4,204	5,067	863	17	13	4	13
17	8,642	9,427	785	17	8	9	8
18	6,243	7,750	1,507	17	15	2	15
26	7,559	8,652	1,093	17	17	0	17
<b>Diesel Fuel Gallons Displaced by CNG</b>							1,007

**Photographs & Outreach:** As part of commitment under the grants, we have MSRC decals on the fueling station and we have performed an outreach program. I have attached pictures verifying the decals and I have included the media materials supporting our outreach program. As part of our outreach program, we were most proud to have Mr. Greg Pettis, Mobile Source Air Pollution Reduction Review Committee Chair, speak at our ribbon cutting ceremony on October 29<sup>th</sup>, 2013. This event was covered by our local media.

**Summary and Conclusions:** This was the first of a grant of this type our district had engaged. We found the process to be smooth and the requirements of the grant were well defined. We have not identified any recommendations of how to improve the future execution of the project.

The work entailed modifying our maintenance facility to be compliant with all safety standards associated with the installation of our CNG fueling station. The construction of a CNG fueling station and the subject maintenance facility modifications has enabled our district to fuel our five (5) new CNG buses that recently replaced five (5) older, non-compliant diesel buses. Our plan is to replace more of our existing older, non-compliant diesel buses with CNG buses as grants for buses become available.

As previously stated, we do not have any specific data as to the reduced emissions of our new CNG buses as compared with our older and recently replaced non-compliant diesel buses. However, there are numerous studies that support the general statement that the emissions from new CNG buses are substantially less than those of older, non-compliant diesel buses. Additionally, there is precise information within this report that quantifies the number of diesel fuel gallons displaced by the use of our CNG buses.