MS#11060

ROWLAND UNIFIED SCHOOL DISTRICT DESIGN/BUILD CNG FACILITY

Construction Performed By
CLEAN ENERGY
January 23, 2015

"Prepared for the Mobile Source Air Pollution Review Committee (MSRC) under the AB 2766 Discretionary Fund Work Program.

ACKNOWLEDGEMENTS

Key personnel and organizations involved in the complete construction and success of the CNG facility is as followed: Southern California Gas Co, SCE, HMC Architects, RUSD Building Services, Clean Energy, Vant Hul Construction Company, Mansfield Fuel Company, River City Testing, Knowland Construction Company, MSRC, and the SCAQMD. Also, special thanks for their complete support of this refueling project to the Rowland Unified School District Board of Education for approving this major project.

This report was submitted in fulfillment of MS#11060 and Rowland USD CNG Facility by Clean Energy Fuels under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of May 30, 2014.

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 and Work Performed

In an effort to comply with state and local air quality regulations and low emission standards; Rowland Unified School District purchased four Compressed Natural Gas (CNG) school buses, and currently purchased another 11 CNG buses. Based on the lack of CNG stations within the San Gabriel Valley, Rowland Unified School District requested to install their own CNG infrastructure fueling facility and applied for grant funding from the Mobile Source Air Resource Committee (MSRC).

This funding alternatively allowed our district to provide the necessary fueling standards other districts currently have in place and utilized the buses in the most efficient manner available with overnight fueling compared to the quick fill method thus providing maximum mileage.

Other funding obtained through the Clean Transportation Program sponsored by the MSRC was from the SCAQM and the participation in the School Bus Low Emissions Program. This program allowed the District to remove gross polluting school buses from service and replace with cleaner burning fuel buses.

Our district is currently seeking to replace all diesel powered on-road vehicles in the yellow fleet with CNG powered buses to comply with AQMD's local clean air

mandates for lower emissions qualities within the San Gabriel basin.

Planning and Designing

The Clean Energy turnkey CNG station designers provided our district with the schematics and a price quote for this project and their projected completion dates. HMC Architects was hired by the District to assist in the initial planning phase and to oversee the construction of the CNG station performed by Clean Energy. Initial drawings were submitted and analyzed by the district to provide the most efficient and cost effective equipment possible to deliver the most optimum savings to the District.

The work performed in the interim was to contact our local utility companies such as the So Cal Gas and the Edison Company to provide feedback on upgrading existing utilities to accommodate the equipment being installed for the CNG facility. Upgrading current gas service required a 2" service pipe install into the facility to accommodate the high pressure gas from the main pipe from the street.

Providing electrical power to operate our two 75 scfm Bauer compressors required upgrading our existing transformer from 220 volt to 440 volt. Having this switch over also provides power to the entire Transportation

Department and Building Services complex. The District's electrical engineers along with HMC worked with Clean Energy's electrical engineer contractors to provide the most efficient setup up for the facility and the project.

Construction

Construction of the CNG facility was performed by Vant Hul Construction Company. This company provided the technical expertise and advice regarding installment of gas lines and electric conduits from the compressor to our slow and fast fill dispensers. Trench cutting and digging begin to where the slow fill k-rails and to our fast-fill dispenser in front of the Transportation/Building Services Facility.

Operations

In April 2014, tests begin on the slow-fill station utilizing two Bauer 75 scfm compressors and buses were being fuel to analyze the gas flow efficiency to 10 of the CNG buses. Buses were being fueled overnight, commencing at 8:00 pm to 12 midnight. The utilizing of the fast-fill station can be used by local buses requiring CNG for their vehicles. Local surrounding school district may also utilize the CNG for their vehicle when necessary through mutual accounts with Rowland USD.

Problems Encountered

Rowland Unified School district requested an extension on the Grant funding for the building of the CNG Facility. During the initial planning with our project manager, the District discovered that a continuation high school which was adjacent to the Transportation yard where the facility was proposed required a DSA approved blast wall built before constructing the proposed station for student safety.

In several meetings with the architect, our plans where changed, and the location of our gas line also changed with the Gas Company, thus prompting us revising our initial plans along with additional costs.
The initial contract and construction start date for the gas line with the Gas Company was cancelled and a new application was processed. The District also had to notify the Gas Company once the blast wall as DSA requires an initial review process by their department to meet code for construction. This would have pushed the completion date back another 5 weeks and will take before construction can start. This initially had the proposed timeline our scheduled completion time and startup for November 10, 2013. After carefully reviewing the concern, the District opted to move this continuation school, thus eliminating the proposed blast wall.

Emission Benefits

This section describes the benefits proposed compared with the benefits achieved from the project. The discussion must be quantified to include pollutants reduced, trips reduced, etc.

Photographs & Outreach

To document a completed project which involved vehicles or equipment, a picture or pictures showing MSRC logo/decal must be included in the report. This section shall also include copies of any media/outreach materials and/or news clippings generated by the project.

NEWS AND ANNOUNCEMENTS

GREEN EXTREME: RUSD Builds Compressed Natural Gas Public Station

GREEN EXTREME.... LOCAL SCHOOL DISTRICT BUILDS COMPRESSED NATURAL GAS PUBLIC STATION

ROWLAND HEIGHTS, CA – OCTOBER 28, 2013 – You've heard of school districts being green, but this is taking green to a new level. Rowland Unified School District, located in the San Gabriel Valley, is known for its innovation in the classroom, and now for its green innovation by building a compressed natural gas (CNG) station for its fleet of new CNG busses. What's unique is that this station will also be open to the public at very affordable rates.

On Wednesday, October 30, at 9:30 a.m., the media is invited to learn more as the District begins to build this public CNG station. The RUSD Transportation Department is located at 1010 S. Otterbein Avenue in Rowland Heights, CA 91748. (626)965-5719.

"We believe this is a wonderful opportunity to be good to our environment by providing a fleet of 15 new CNG buses that serve our community. In addition, it is a new way to raise funds for our District," said Rowland Unified School District Superintendent Ruben Frutos.

The newly built CNG station will be accessible to the public 24 hours a day, and will feature two dispensers for fueling CNG vehicles (both cars and trucks) with fast-fill pumps operating at pressure ratings of up to 3600 psi. The station will have two storage tanks with two 75 square cubic feet per minute compressors that operate both the fast-fill and the school bus time-fill CNG stations simultaneously. The CNG time-fill station will allow Rowland Unified School District to fill approximately 25 buses in a 10 hour period. In the future, the Rowland USD Transportation Department will be upgrading the station with an additional compressor for optimal efficiency and will expand the fleet to 33 CNG buses.

Pictured: RUSD Transportation Director Keith Moore and Superintendent Ruben Frutos with new Compressed Natural Gas Bus delivered today. Pictured behind is old bus that is already being prepared for disposal.

Posted on October 28, 2013

Tweet Like 0

powered by edlio

NGV FORUM
National news and dialogue for the natural gas vehicle industry

A Service Of
NGVAMERICA

CALIFORNIA SCHOOL DISTRICT BUILDS CNG STATION

by Paul Speraw on November 11. 2013 in News with 1 Comment

Tweet 0 Like 3 Share

The Rowland Unified School District (Los Angeles County) announced that it has built a CNG station for its fleet of 15 new CNG buses. The newly built CNG station will also be accessible to the public 24 hours a day, and will feature two dispensers with fast-fill pumps operating at pressure ratings of up to 3,600 psi. The time-fill side of the station will allow the District to fill approximately 25 buses overnight. The station features two storage tanks with two 75 square cubic feet per minute compressors that operate both the fast-fill and time-fill sides of the station simultaneously. In the future, the Rowland USD Transportation Department will be upgrading the station with an additional compressor for optimal efficiency and will expand the fleet to 33 CNG buses. "We believe this is a wonderful opportunity to be good to our environment by providing a fleet of 15 new CNG buses that serve our community," said Ruben Frutos, Rowland USD Superintendent. "In addition, it is a new way to raise funds for our District."

Tagged:

Crews begin work on new CNG station at Rowland Unified transportation garage in Rowland Heights, Calif. (Photo by Gina Ward, Courtesy of Rowland Unified)

• Twitter

By Richard Irwin, San Gabriel Valley Tribune

Posted: 11/27/13, 2:08 PM PST|

0 Comments

Rowland USD Transportation Director Keith Moore shows Superintendent Ruben Frutos new CNG bus engine (with old bus behind). (Photo by Gina Ward, Courtesy of Rowland Unified)

Rowland Unified is going into the gas station business, the natural gas kind of course.

The local school district has begun construction of a compressed natural gas station at its bus yard in Rowland Heights.

"We believe this is a wonderful opportunity to be good to our environment by providing a fleet of 15 new CNG buses that serve our community. In addition, it is a new way to raise funds for our district," said Superintendent Ruben Frutos.

So Rowland Unified is building a compressed natural gas (CNG) station on Otterbein Avenue. The district says it will open the station to the public at very affordable rates in mid-March.

"I estimate the average CNG car will take about five minutes to fill at a cost of only $20," said Keith Moore, the school district's director of transportation.

The new "gas" station will be open 24 hours a day. It will have two dispensers with fast fill pumps operating at 3,600 pounds per square inch.

Two storage tanks will be filled by a pair of compressors that can handle 75 square cubic feet per minute.

This equipment will simultaneously serve the fast fill and time fill systems. The CNG time fill system will allow Rowland Unified to fill 25 school buses over a 10-hour period.

Later, the district plans to upgrade the CNG station so it can serve 33 buses at one time.

Over the past couple years, the district has received $2.5 million in grants to buy cleaner buses. The new buses are fueled by compressed natural gas, eliminating the dirty diesel that powered the old buses.

In an earlier interview, Moore said studies show CNG buses emit significantly less pollutants, such as carbon dioxide, carbon monoxide and nitrogen oxides.

"When we heard about the California Air Resources Board's school bus program, we applied for six new buses through the (South Coast Air Quality Management District)," Moore explained. "We got another nine buses later."

The Air Resources Board wants to reduce children's exposure to cancer-causing pollutants. It helps school districts replace older gross-polluting diesel buses with clean alternative fuel models.

Proposition 1B approved by voters in 2006 provided $200 million for replacing and retrofitting school buses.

Rowland is replacing nearly half its fleet of 42 buses with glistening yellow buses that will not only help the air, but save the district money.

"With the new CNG buses, we expect to cut our fuel costs by a third over the next three to five years," Moore said.

The new machines are not only a marvel of green technology, they're safer and more comfortable.

"You don't have to slide the windows down to get air on a hot day," Moore said. "The new buses have air conditioning."

There are also gas leak detectors that automatically shut off the four large gas tanks located underneath the bus. A fire suppression system guards the engine bay in back.

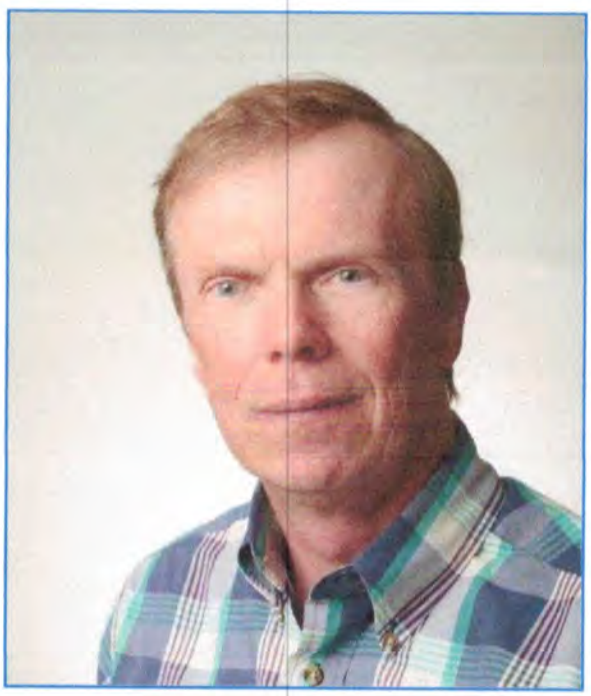
"These buses have been proven safe. In the past 11 years, there have been no fatalities or major fires on them," Moore said.

Inside, 70 students will sit on fully-padded flame retardant seats with three-point seat belts. In case of an emergency, there are four emergency exits as well as two large roof vents.

"These buses have so many safety features, such as a GPS system that allows us to track them. We can even monitor how fast they're traveling or if they're stopped," Moore said.

- #
- Twitter
- Reddit
- Facebook
- 0 Comments
- ...
  - Email
  - Print
  - Tumblr
  - LinkedIn
  - StumbleUpon

About the Author



Reach the author at Richard.Irwin@sgvn.com or follow Richard on Twitter: @richirwinsgvn.

- Full bio and more articles by Richard Irwin
- Back to top

Top Stories

CA School District to Refuel Natural Gas Vehicles Via New CNG Station

in News Departments > New & Noteworthy

by **NGT News** on Tuesday November 05, 2013

g+1 2

California-based Rowland Unified School District says it is building a public-access compressed natural gas (CNG) refueling station to support its fleet of 15 new CNG-powered buses.

The station will be accessible to the public 24 hours a day and feature two dispensers for fueling natural gas vehicles. The fast-fill pumps will operate at 3,600 psi, backed by two CNG storage tanks and two 75 cfm compressors.

In addition, the station will feature a time-fill component that will be primarily used to fill the district's CNG buses. The time-fill posts will enable the refueling of approximately 25 buses in a 10-hour period.

Going forward, the district's transportation department intends to upgrade the station with an additional compressor, as well as expand the CNG fleet size to a total of 33 CNG buses.

Rowland Unified School District is located in the San Gabriel Valley, east of Los Angeles.

QUESTAR Fueling

Register here to receive our Latest Headlines email newsletter

2

Related Stories

- Natural Gas Trucking: Economic Benefits, But Mixed Environmental Effects?
- Controversial Propane Autogas Project Advances in Ulster County
- California Boosts Clean Fleet Rebates in Disadvantaged Communities

NOTICE
2
FUELING INSTRUCTIONS
THIS SALE
GALLON EQUIVALENT
PER GALLON EQV
CNG
(COMPRESSED NATURAL GAS)
Project supported b
Clean Transportatio
Funding from the MSR
www.cleantransportationfunding.

Professional Resource Center
STOP MOTOR
NO SMOKING
DO NOT
DISPENSE INTO
UNAPPROVED
CONTAINERS
DISPENSING
LIMITED TO
THE FILLING
OF PERMANENTLY
MOUNTED FUEL
CONTAINERS ON
CNG APPROVED
VEHICLES
FUELING INSTRUCTIONS
CNG
(COMPRESSED NATURAL GAS)
Project supported by
Clean Transportation
Funding from the MSRC
www.cleantransportationfunding.org
SHUT OFF
ENGINE
BEFORE
REFUELING
NO
SMOKING
2
1

BAUER
COMPRESSORS
BAUER
COMPRESSORS
BAUER
COMPRESSORS

BAUER
BAUER

STOP
CAUTION
STOP MOTOR
NO SMOKING
2
1
27

Summary and Conclusions

This project provided the most efficient and most effective means for the school district to provide fuel to its 15 school buses. The time frame for completion of the project was pushed back a few times but allowed for changes to much of the district's satisfaction.

The fueling of Rowland's buses now take place in the evening hours and half decreased costs to the department's overall budget by half from previous years.

Future expansion of the CNG station will include another 200 SCFM compressor to provide a more effective and efficient system for future fleet expansion. The district is planning to improve it other fleet of white vehicles and convert their replacements to CNG vehicles to help the overall San Gabriel Valley environment by going all green!