

BOARD MEETING DATE: April 4, 2014

AGENDA NO. 5

PROPOSAL: Execute Contract for School Bus PM Control Retrofit

SYNOPSIS: In 2006, Chaffey Joint Union High School District (Chaffey) was awarded a grant to install diesel particulate filters (DPFs) on 15 diesel school buses equipped with Hydraulic Electronic Unit Injector (HEUI) engines. The school buses were exhibiting engine problems due to high backpressure possibly caused by the existing DPFs. In 2013, SCAQMD funded an evaluation of two alternative DPFs, and the evaluation yielded successful results. Chaffey has selected the Thermacat DPF, one of the two technologies evaluated, for installation on the remaining 13 school buses. This action is to execute a contract with Chaffey to retrofit 13 diesel school buses powered by HEUI engines with Thermacat DPF technology at a cost not to exceed \$260,000 from the Carl Moyer Program AB 923 Fund (80).

COMMITTEE: Technology, March 21, 2014, Recommended for Approval

RECOMMENDED ACTION:

Authorize the Executive Officer to execute a contract with Chaffey Joint Union High School District to retrofit 13 diesel school buses powered by HEUI engines with Thermacat DPF technology in an amount not to exceed \$260,000 from the Carl Moyer Program AB 923 Fund (80).

Barry R. Wallerstein, D.Env.
Executive Officer

MM:HH:RP:AAO:RC

Background

In 2006, the Board awarded a grant to Chaffey to retrofit 19 diesel school buses with Cleaire Horizon DPFs under the Lower Emission School Bus Program. On May 12, 2012, Chaffey reported that, one year following the DPF installations, all of the

retrofitted buses powered by HEUI engines began to exhibit frequent injector seal failures and other engine-related problems due to high backpressure possibly caused by undersized or plugged DPFs. The HEUI system uses high pressure engine oil to control the injection of diesel fuel into the engine; a faulty injector seal can allow engine oil to flow back to the fuel tank and contaminate the diesel fuel. Contaminated diesel fuel can produce excessive soot and ash, plugging the DPF. In addition, high backpressure may aggravate injector seal failures. Chaffey believes that the Horizon DPF is not suitable for school buses powered by HEUI engines and requested assistance to replace the Horizon DPFs on all the buses with alternative DPFs more suited for school buses equipped with HEUI engines.

SCAQMD and CARB staff worked with Chaffey to assess the causes of the engine problems and discussed possible remedies. As a result of this deliberation, two alternative DPF technologies that were successfully operating on non-school bus diesel vehicles powered by HEUI engines were identified. On March 1, 2013, the Board awarded a contract to Chaffey to retrofit 2 of the 15 diesel school buses powered by HEUI engines with the two alternate DPF technologies to assess the technologies' performance for a six-month period before making a recommendation to replace the existing DPFs on all 15 buses.

Proposal

The DPF technologies installed on the two buses were the Thermacat actively regenerated DPF and the Donaldson LNF passively regenerated DPF. Both buses were then placed into normal student transportation service for six months. The bus equipped with the Thermacat DPF operated satisfactorily, accumulating 8,500 miles without loss of power, drivability issues or other engine-related problems. The bus equipped with the Donaldson LNF DPF accumulated 6,500 miles and generally operated satisfactorily. However, engine surging and sluggish performance were reported, although they could not be attributed directly to the DPF. Based on the results of the assessment, Chaffey indicated their desire to install the Thermacat DPF on the remaining buses with HEUI engines and requested financial assistance from the SCAQMD.

This action is to execute a contract with Chaffey to retrofit 13 diesel school buses powered by HEUI engines with Thermacat DPF technology. The scope of the project includes procurement of 13 Thermacat DPFs and installation on 13 diesel school buses powered by HEUI engines to replace existing Horizon DPFs.

Benefits to SCAQMD

The proposed project is included in the *Technology Advancement Office 2014 Plan Update*, under "Emission Control Technologies". Since 1998 diesel PM has been identified as a toxic air contaminant and emission control technologies such as DPFs will assist the region in achieving federal and state standards. This project will also ensure continued emission reduction benefits under the Lower Emission School Bus and Carl

Moyer Programs. Since the buses and the DPFs funded under these programs will operate for many years, the emission reductions will provide long-term benefits.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies provisions by which a sole source award may be justified. The request for a sole source award is made under provision B.2.d(5): Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the SCAQMD, B.2.c(3): the contractor has ownership of key assets required for project performance, and B.2.d(1): projects involving cost sharing by multiple sponsors.

Chaffey has ownership of the school buses and will purchase, install, monitor and maintain the Thermacat DPFs as part of its duties of maintaining and operating the school buses. In addition, the proposed project is cost shared by Chaffey as shown in the following section.

Resource Impacts

The total project cost is estimated to be \$280,000, of which SCAQMD's cost-share shall not exceed \$260,000 from the Carl Moyer Program AB 923 Fund (80). Chaffey will provide the remaining \$20,000 as an in-kind contribution.