

EXHIBIT SUMMARY SHEET

Proposing Entity (include other participating entities): Tahoe Truckee Unified School District

Contact Person: Tony Lavezzo

Address: 12485 Joerger Dr., Truckee, CA 96161

Phone #: (530) 550-0776

FAX #: (530) 550-0739

EMAIL: tlavezzo@ttusd.org

Total Project Budget:

	AB 2766 Funds	Co-Funding	Total Project Costs
Capital Costs	<u>\$ 75,000.00</u>	<u>\$ 81,777.18</u>	<u>\$ 156,777.18</u>
Operating Costs	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
TOTAL	<u>\$ 75,000.00</u>	<u>\$ 81,777.18</u>	<u>\$ 156,777.18</u>

Type of Project: (check one)

Quantifiable Project

Reduced Emission Vehicles Project

Implementation Area for Project: Check if District-wide

Describe the Implementation Area for the Project (e.g. city, county, region): Bus will be operated in the Town of Truckee, Nevada County and the surrounding area.

Estimated Emission Reductions:

A. Emission Reductions (lbs. /yr.)

Reactive Organic Gases 313.79 Nitrogen Oxides 1049.72 PM₁₀ 23.21

B. Vehicle Miles Traveled (VMT) Reduced 0

Single Occupancy Vehicle Trips Reduced 0

C. Number of people reached per day through public education _____

Cost-effectiveness: \$ 4.39 per pound (AB 2766 Funds Only)

Brief Project Description:

Replace one older school bus with a new bus that employs a NOx and PM emission control system.

REQUEST FOR PROPOSAL CONTENTS CHECKLIST

Applicant: Tahoe Truckee Unified School District

Please complete and attach this checklist with your application.

Exhibit Summary Sheet - page 1

Request for Proposal Contents Checklist - page 2

Authorization Letter/Resolution - page 3

Project Description - page 4

Project Organization/Background - page 5

Emissions Benefits/Cost-Effectiveness - page 6

Work Statement - page 9

Funding Request/Breakdown of Cost – page 9

Schedule of Deliverables/Monitoring - page 10

All Pages Numbered

 N / A

Three Copies of Proposal Plus One Original

(CHECK ONE ONLY)

Quantifiable Project

- OR -

Reduced Emission Vehicles Project



PATHWAYS TO POSSIBILITIES AND STUDENT SUCCESS

District Office
Carmen Diaz Ghysels
Superintendent
Chief Learning Officer
11603 Donner Pass Rd
Truckee, CA
96161-4953
P (530) 582-2500
F (530) 582-7606
www.ttusd.org

Board of Trustees
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Elementary Schools
Donner Trail
Elementary
Glenshire Elementary
Kings Beach
Elementary
Tahoe Lake
Elementary
Truckee Elementary

Middle Schools
Alder Creek Middle
North Tahoe School
5-8

High Schools
Cold Stream
Alternative
North Tahoe High
Sierra High
Tahoe Truckee High

www.ttusd.org
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June 30, 2021

Northern Sierra Air Quality Management District
PO Box 2509
Grass Valley, CA 95945

Dear Northern Sierra Air Quality Management District,

The following individual(s) are authorized to a proposal on behalf of Tahoe Truckee Unified School District:

Project Managers for the Proposal:

Nanette Rondeau
Director of Transportation
12485 Joerger Rd
Truckee, CA 96161
(530) 550-0745 or nrondeau@ttusd.org

Tony Lavezzo
Fleet Manager
12485 Joerger Rd
Truckee, CA 96161
(530) 550-0763 or (530) 550-0745 or tlavezzo@ttusd.org

Authorized Signees of the Proposal:

Todd Rivera
Executive Director of Fiscal Services
11603 Donner Pass Rd
Truckee, CA 96161
(530) 582-2541 or trivera@ttusd.org

Carmen Diaz Ghysels
Superintendent Chief Learning Officer
11603 Donner Pass Rd
Truckee, CA 96161
(530) 582-2550 or cghysels@ttusd.org

Signature:  Date: JUL - 1 2021
Carmen Diaz Ghysels
Superintendent Chief Learning Officer

Project Description

The objective of the Low NOx School Bus Replacement project is to replace an older diesel school bus with a newer school bus that has a NOx and PM emission control device. The older diesel school bus, like the one outlined in the project, can only be retrofitted for the control of PM emissions not NOx. NOx is harmful atmospheric pollutant known for contributing to smog and acid rain. The only way to reduce the NOx created by the school bus in question is to replace it with a new school bus that will employ NOx controlling technology.

This project would take a 1999 diesel school bus off the road and replace it with a 2010 or newer diesel school bus that would employ the latest NOx and PM control strategies. The new diesel school bus will exceed 2010 NOx control requirements for heavy duty diesel vehicles. With the replacement of the older school bus, it would lower the NOx and PM emissions created in the region. This would ensure less exposure to children at school sites and less exposure to residents throughout the community.

Project Organization/Background

Tahoe Truckee Unified School District (TTUSD):

The Tahoe Truckee Unified School District Transportation Department provides transportation to over 3,000 students covering over 400,000 miles a year. The fleet of 35 vehicles operates from Kingvale on Donner Summit to Hirschdale on Highway 80 towards Reno, from Tahoma on the Westshore of Lake Tahoe to Prosser on the North end of Highway 89.

The District is actively working towards reducing the impact of diesel emissions within the Tahoe Truckee School District community. Buses are replaced with the newest, cleanest, diesel technology when district funds are available, or the district applies for grants when funds are not available. In the past, TTUSD has been awarded funding for the replacement multiple buses with new low NOx buses. For the buses that did not qualify for grant replacement, TTUSD has maintained its fleet of buses in compliance with PM controlling retrofits that do not control NOx. The next step for a cleaner fleet is to replace the older retrofitted buses with newer buses that employ NOx controlling SCR technology.

This proposal is to replace one transit school bus with a more versatile conventional special needs school bus that will employ the latest NOx and PM emissions control technology. TTUSD will purchase the bus through Buswest. Below is information on Buswest, the company we have selected.

Buswest:

Buswest is a transportation dealer-distributor serving the education, government, public sector, commercial and private fleet markets with a broad portfolio of bus solutions. Buswest Specializes in Thomas Built Buses (TBB) and offer a full range of new and used buses. From the largest to the smallest, wheelchair access/ADA compliant and more. All Buswest school buses are rigorously tested to make sure they meet or exceed all Federal and State safety standards. Buswest is part of the Velocity Vehicle Group and has multiple sales and service locations serving California, Arizona, Nevada, and Hawaii.

Accounting:

Buswest will provide a single invoice for the vehicle, taxes, and any other fees or options. The invoice will be recorded through the normal Tahoe Truckee Unified School District accounting management system, as required. Grant funds will be received by TTUSD in a onetime lump sum payment and put towards the total cost of the purchase. The remaining balance will be paid by TTUSD.

Emissions Benefits/Cost Effectiveness

Under this proposal, one school bus will be replaced with a new diesel school bus that will employ the latest NOx and PM control strategies. This system will provide a very substantial drop in NOx emissions. The calculations for these reductions are listed below. In addition to NOx reductions, the system on the new buses will lower PM emissions by over 85 percent. This is critical to the drivers, students, and communities in which the buses operate because currently no NOx emission control strategy available for the bus must be replaced.

Due to the lower speeds of school bus routes the *Methods to Find the Cost-Effectiveness of Funding Air Quality Projects – 2020 Edition table 1: Diesel Bus Emissions Factors* do not give accurate emissions factors. The following calculations will be based on the California Executive Order for the vehicle to be replaced and the new vehicle. The information below includes both engines and the Executive Order will be attached in the technical appendices:

1999 Thomas Westcoast-ER

EO: A-13-119-1

EPA Engine Family: **WCPXH0442HSK**

Horsepower: **300 bhp**

PM: **0.10 g/bhp-hr**

NMHC (ROG): **1.3 g/bhp-hr**

NOx: **4.0 g/bhp-hr**

2021 Thomas C2*

EO: G-19-095**

EPA Engine Family: **KCEXH0408BAT****

Horsepower: **260 bhp**

PM: **0.02 g/bhp-hr**

NMHC (ROG): **.21 g/bhp-hr**

NOx: **.30 g/bhp-hr**

Engine hours:

Engine hours are captured from our Zonar GPS tracking system that is installed on all TTUSD’s vehicles. Due to the 2020/2021 COVID shutdown a three-year average will be used for all calculations.

Asset	First Power On	Last Power Off	Ending Hour Meter	Elapsed Hours
24	1/04/2017 9:47am	11/24/2020 1:38pm	5465.8	1699

*Bus model and/or year may change depending on availability. Any bus ordered will meet same specifications as bus listed in this RFP

**Engine family number may change depending on manufacturer availability. Any bus ordered will meet or exceed emission factors stated in this RFP

Emissions Benefits/Cost Effectiveness *(continued)*

Vehicle to be Replaced Emissions Calculation

Annual NMHC (ROG) in Grams = (NMHC x Annual Hours) x Horsepower

$$368,940g = (1.3 \times 424.75) \times 300$$

Annual NMHC (ROG) in Grams ÷ Grams to Lbs. conversion factor = Annual NMHC in lbs.

$$165,360g \div 454 = 364.87 \text{ lbs.}$$

Annual NOx in Grams = (NOx x Annual Hours) x Horsepower

$$1,135,200g = (4 \times 424.75) \times 300$$

Annual NOx in Grams ÷ Grams to Lbs. conversion factor = Annual NOx in Lbs.

$$509,701.26g \div 454 = 1122.69 \text{ lbs.}$$

Annual PM in Grams = (PM x Annual Hours) x Horsepower

$$28,380g = (.10 \times 424.75) \times 300$$

Annual PM in Grams ÷ Grams to Lbs. conversion factor = Annual PM in Lbs.

$$12,743.78g \div 454 = 28.07 \text{ lbs.}$$

Total Emissions Per Year Old Vehicle	
ROG:	364.87 lbs.
NOx:	1122.69 lbs.
PM:	28.07 lbs.
Total Emissions:	1515.63 lbs.

New Vehicle Emissions Calculation

Annual NMHC (ROG) in Grams = (NMHC x Annual Hours) x Horsepower

$$59,598g = (.21 \times 424.75) \times 260$$

Annual NMHC (ROG) in Grams ÷ Grams to Lbs. conversion factor = Annual NMHC in lbs.

$$23,191.35g \div 454 = 51.08 \text{ lbs.}$$

Annual NOx in Grams = (NOx x Annual Hours) x Horsepower

$$85,140g = (.30 \times 424.75) \times 260$$

Annual NOx in Grams ÷ Grams to Lbs. conversion factor = Annual NOx in lbs.

$$33,130.5g \div 454 = 72.97 \text{ lbs.}$$

Annual PM in Grams = (PM x Annual Hours) x Horsepower

$$5,676g = (.02 \times 424.75) \times 260$$

Annual PM in Grams ÷ Grams to Lbs. conversion factor = Annual PM in lbs.

$$2,208.7g \div 454 = 4.86 \text{ lbs.}$$

Total Emissions Per Year New Vehicle	
ROG:	51.08 lbs.
NOx:	72.97 lbs.
PM:	4.86 lbs.
Total Emissions:	128.91 lbs.

Emissions Benefits/Cost Effectiveness *(continued)*

Total Emissions Reductions Per Year	
ROG:	313.79 lbs.
NOx:	1049.72 lbs.
PM:	23.21lbs.
Total Emissions Reduction:	1366.87 lbs.

Cost Effectiveness/ Capitol Recovery

Project Cost	
AB 2766 Funds:	\$75,000.00
TTUSD Contribution:	\$81,777.18
Total cost of Project:	\$156,777.18

To calculate the cost effectiveness of this project the amount of funds requested will be multiplied by the capitol recovery factor of .08 and then divided by the total amount of pollutants reduced. The capitol recovery factor of .08 is used because the minimum useful life of the vehicle to be purchased is 15 years.

$$(AB\ 2766\ Funds \times\ Capitol\ recovery\ Factor) \div Total\ emission\ reduction = Cost\ per\ Pound$$

$$(75,000 \times .08) \div 1366.87 = 4.39$$

Totals

AB Funds Requested:	\$75,000.00
Emissions Reduced:	1366.87 lbs.
Cost Per Pound Reduced:	\$4.39

Work Statement

January 2022 Upon grant execution, TTUSD will begin the process to have the purchase of a new bus approved by TTUSD school board.

February 2022 Place order with Buswest for one new school bus.

July 2022 On or before July 2018, take delivery of one new school bus. Once delivered TTUSD will invite NSAQMD to inspect the bus and a decal stating the funding source for the bus will be applied at this time.

Funding Request/Breakdown of Cost

Tahoe Truckee Unified School District is requesting \$75,000.00 in AB 2766 funds to purchase a 2010 or newer school bus. The specifications and quote are attached in the technical appendices. This project does not have any administrative costs. The following table shows a breakdown of cost and cofunding sources.

Project Cost	
AB 2766 Funds:	\$75,000.00
TTUSD Contribution:	\$81,777.18
Total cost of Project:	\$156,777.18

Schedule of Deliverables/Monitoring Program

Vehicle Delivery

On or before July 2022 TTUSD will take delivery of one new school bus. Once delivered TTUSD will invite NSAQMD to inspect the bus and a decal stating the funding source for the bus will be applied at this time. Any delay in delivery of the new school bus will be communicated to NSAQMD via email.

Monitoring Program

Upon delivery of the new bus TTUSD will start to track the annual operating hours and mileage. TTUSD will report the mileage, hours and overall performance of the unit after the first, fifth and seventh year of operation. TTUSD will operate the new vehicle, at minimum, the same number of hours and miles as the vehicle it was intended to replace. Reports of operating data will be available at the request of the NSAQMD.

Technical Appendices

<u>Table of Contents</u>	<u>Page</u>
Annual hour meter report for bus to be replaced	ii
Buswest Sales Quote	iii
New Vehicle Engine Executive Order	iv
Old Vehicle Engine Executive Order	vii

Annual hour meter report for bus to be replaced

GPS Engine Hours Summary Report - From: 1/1/2017 To: 1/1/2021

Filters

Note: This Report Requires GPS Firmware Version 2.94 or Newer
Page 1

ASSET	FIRST POWER ON	LAST POWER OFF	ZONE	ENDING HOUR METER	ELAPSED HOURS
24	01/04/2017 07:09:47	11/24/2020 07:29:51	Combined Totals	<u>5465.8</u>	1699

Bus West Sales Quote



Bid Form

June 21, 2019

Customer Order No.: SBBC 07519

Honorable Board of Trustees
 Tahoe Truckee Unified School District
 12485 Joerger Dr
 Truckee, Ca 96161

BusWest respectfully submits for your consideration our bid to supply 1 complete 42/6 var passenger school bus as follows:

Chassis Make: Freightliner	Model: B2 106	Model Year: 2019
Wheelbase: 219"	Engine: Cummins ISB	Horsepower: 260
Body Make: Thomas	Model: Saf-T-Liner C2	Capacity: 42/6 var
Transmission: Allison 2500 PTS		
Delivery Date: 180-210 Days after receipt of order	Subject to Prior Sale: No	

Cash Purchase Price (each):	\$ 136,239.00	Tax Exempt: \$ 21,681.00
Doc Fee:	\$ 65.00	Taxable: \$ 114,623.00
Sales Tax @: 8.250%	\$ 9,456.40	
CA. Tire Tax: \$1.75 ea. tire	\$ 10.50	
Total	\$ 145,770.90	

We have examined the detailed minimum specifications established by the school board and guarantee this bid to be in accordance thereto. Above price includes all dealer prep., pre-delivery service, necessary lettering, F.O.B. school district and documentation fee.

 Brian Hedman, Sales Representative


Quote is good for thirty (30) days

Quote No.: 345163

Carson - Main Headquarters
 21107 South Chico St. Carson, CA. 90745
 Sales Toll Free: (800) 458-9199 Main: (310) 984-3900 Fax: (310) 984 -3996
 Parts Toll Free: (866) 707-7800 Fax: (310) 984-3994
www.buswest.com

Sacramento
 210 North East St., Woodland, CA. 95776
 Main: (424) 210-3020
Fresno
 4337 North Goldenstate Ste#101, Fresno, CA 93609
 Main: (559) 277-0118

New Vehicle Engine Executive Order

 CALIFORNIA AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER A-021-0891-1 New On-Road Heavy-Duty Engines Page 1 of 2 Pages
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Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-19-095;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZE (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³	DIAGNOSTIC ⁵
2019	KCEXH0408BAT	6.7	Diesel	Diesel	MHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-U, AMOX	OBD(\$)
PRIMARY ENGINE'S IDLE EMISSIONS CONTROL ⁵		ADDITIONAL IDLE EMISSIONS CONTROL ⁵					
30g		N/A					
ENGINE (L)		ENGINE MODELS / CODES (rated power, in hp)					
6.7		See attachment for engine models and ratings					

¹ Not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter, hp=horsepower, kw=kilowatt, hr=hour;
² CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
³ L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
⁴ ECS=emission control system; TWC/O=C=three-way/oxidizing catalyst; NAC=NOx adsorption catalyst; SCR-U / SCR-N=selective catalytic reduction - urea / - ammonia; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; PTOX=periodic trap oxidizer; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SF/MPF=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; ID/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR / EGR-C=exhaust gas recirculation / cooled EGR; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 1 (prefix)=parallel; (2) (suffix)=in series;
⁵ ESS=engine shutdown system (per 13 CCR 1956.8(a)(6)(A)(1)); 30g=30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C)); APS =internal combustion auxiliary power system; ALT=alternative method (per 13 CCR 1956.8(a)(6)(D)); Exempt=exempted per 13 CCR 1956.8(a)(6)(B) or for CNG/LNG fuel systems; N/A=not applicable (e.g., Otto engines and vehicles);
⁶ EMD=engine manufacturer diagnostic system (13 CCR 1971); OBD(F) / (P) / (B) =full / partial / partial with a fine / on-board diagnostic;

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the SET and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, SET and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in parentheses). ⁴

In g/bhp-hr	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET
STD	0.14	0.14	0.20	0.20	*	*	15.5	15.5	0.01	0.01	*	*
CERT	0.03	0.02	0.15	0.10	*	*	0.04	0.01	0.001	0.001	*	*
NTE	0.21		0.30		*		19.4		0.02		*	

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; SET=Supplemental emissions testing; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC=non-methane hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

BE IT FURTHER RESOLVED: The manufacturer has demonstrated compliance with the Greenhouse Gas Emission Standards as specified in Title 13 CCR 1956.8 and the incorporated "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy Duty Diesel-Engines and Vehicles" (HDDE Test Procedures) adopted December 12, 2002, as last amended December 19, 2018 using the 2014 model year National Heavy-Duty Engine and Vehicle Greenhouse Gas Program as specified in Section 1038.108 of the HDDE Test Procedures. The manufacturer has submitted the required information and therefore has met the criteria necessary to receive a California Executive Order based on the Environmental Protection Agency's Certificate of Conformity for the above listed engine family.

In g/bhp-hr	EPA CERTIFICATE OF CONFORMITY		PRIMARY INTENDED SERVICE CLASS	
	KCEXH0408BAT-011		TRACTOR / VOCATIONAL	
	FTP	SET	CH ₄	N ₂ O
STD	576	487	0.10	0.10
FCL	528	494	*	*
FEL	544	509	0.10	0.10
CERT	525	488	0.02	0.08

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; SET=Supplemental emissions testing; STD = standard or emission test cap; FEL=family emission limit; FCL=family certification level; CERT=certification level; CO₂=carbon dioxide; CH₄=methane; N₂O=nitrous oxide; VOCATIONAL=vocational engine; TRACTOR=tractor engine

New Vehicle Engine Executive Order

R/c
 EOH: A-021-0691-1
 Attachment: Page 2 of 3
 8/28/2019

Engine Model Summary Template

Engine Family	1.Engine Code	2.Engine Model	3.HP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: g/hr @ peak HP (for diesel only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (g/hr)/@peak Torque/Device	9.Emission Control Per SAE J1939
CEXH0408BAT	4680:FR94746	86.7 360	360@2600	146	128	800@1800	148	90	SCRC, PTOX, PC
CEXH0408BAT	4680:FR96706	86.7 360ST	360@2600	146	128	800@1800	148	90	SCRC, PTOX, PC
CEXH0408BAT	4680:FR94745	86.7 340	340@2600	138	121	700@1600	134	73	SCRC, PTOX, PC
CEXH0408BAT	4680:FR96705	86.7 340ST	340@2600	138	121	700@1600	134	73	SCRC, PTOX, PC
CEXH0408BAT	4680:FR94744	86.7 325	315@2600	127	112	750@1800	143	67	SCRC, PTOX, PC
CEXH0408BAT	4680:FR96704	86.7 325ST	315@2600	127	112	750@1800	143	67	SCRC, PTOX, PC
CEXH0408BAT	4660:FR94743	86.7 300	300@2600	121	106	860@1600	125	67	SCRC, PTOX, PC
CEXH0408BAT	4661:FR94749	86.7 300	300@2600	121	106	860@1600	125	67	SCRC, PTOX, PC
CEXH0408BAT	4660:FR94741	86.7 280	270@2600	109	96	660@1800	125	67	SCRC, PTOX, PC
CEXH0408BAT	4661:FR94742	86.7 280	270@2600	109	96	660@1800	125	67	SCRC, PTOX, PC
CEXH0408BAT	4569:FR94738	86.7 260	250@2600	109	96	660@1600	122	66	SCRC, PTOX, PC
CEXH0408BAT	4570:FR94739	86.7 260	250@2600	109	96	660@1600	122	66	SCRC, PTOX, PC
CEXH0408BAT	4569:FR94736	86.7 250	245@2600	107	94	660@1600	122	66	SCRC, PTOX, PC
CEXH0408BAT	4570:FR94737	86.7 250	245@2600	107	94	660@1600	122	66	SCRC, PTOX, PC
CEXH0408BAT	4569:FR94734	86.7 240	235@2600	103	90	560@1600	104	56	SCRC, PTOX, PC
CEXH0408BAT	4570:FR94735	86.7 240	235@2600	103	90	560@1600	104	56	SCRC, PTOX, PC
CEXH0408BAT	4569:FR94733	86.7 220	215@2600	95	83	520@1600	97	52	SCRC, PTOX, PC
CEXH0408BAT	4569:FR95098	86.7 220	215@2600	95	83	600@1600	111	60	SCRC, PTOX, PC
CEXH0408BAT	4570:FR94748	86.7 220	215@2600	95	83	520@1600	97	52	SCRC, PTOX, PC
CEXH0408BAT	4570:FR95099	86.7 220	215@2600	95	83	600@1600	111	60	SCRC, PTOX, PC
CEXH0408BAT	4569:FR94732	86.7 200	195@2600	87	76	520@1600	97	52	SCRC, PTOX, PC
CEXH0408BAT	4570:FR94747	86.7 200	195@2600	87	76	520@1600	97	52	SCRC, PTOX, PC
CEXH0408BAT	4660:FR94746	PX-7 360	360@2600	146	128	800@1800	148	90	SCRC, PTOX, PC
CEXH0408BAT	4660:FR96706	PX-7 360ST	360@2600	146	128	800@1800	148	90	SCRC, PTOX, PC
CEXH0408BAT	4660:FR94745	PX-7 340	340@2600	138	121	700@1600	134	73	SCRC, PTOX, PC
CEXH0408BAT	4660:FR96705	PX-7 340ST	340@2600	138	121	700@1600	134	73	SCRC, PTOX, PC
CEXH0408BAT	4660:FR94744	PX-7 325	315@2600	127	112	750@1800	143	67	SCRC, PTOX, PC
CEXH0408BAT	4660:FR96704	PX-7 325ST	315@2600	127	112	750@1800	143	67	SCRC, PTOX, PC

BDI, TC, CAC,
 ECM, EGR, OC,
 PTOX, SCR-U,
 AMOX

New Vehicle Engine Executive Order

R/C

EO#: A-021-0691-1
 Attachment: Page 3 of 3

8/28/2019

Engine Model Summary Template

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: g/bhp-hr @ peak HP (for diesel only)	6.Torque @ RPM (SAE Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (g/bhp-hr)@peak torque	9.Emission Control Devices Per SAE J1980
KCEXH0408BAT	4866,FR04741	PX-7 280 EV	270@2800	108	96	680@1600	125	67	SCR, PTOX, PC
KCEXH0408BAT	4566,FR04738	PX-7 260 EV	250@2800	108	98	680@1600	122	66	SCR, PTOX, PC
KCEXH0408BAT									

DDL, TC, CAC,
 ECM, EGR,
 OC, PTOX, SCR-U,
 Amax

Old Vehicle Engine Executive Order

(Page 1 of 2)

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-13-119-1

Relating to Certification of New Heavy-Duty Motor Vehicle Engines

CATERPILLAR, INC

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102 and 43103 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following 1998 model-year Caterpillar, Inc. diesel-cycle engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 14,000 pounds:

Fuel Type: Diesel

<u>Engine Family</u>	<u>Engine Displacement</u> <u>Liters (Cubic Inches)</u>		<u>Exhaust Emission Control</u> <u>Systems and Special Features</u>
WCPXH0442HSK	7.1	(442)	Turbocharger Charge Air Cooler Engine Control Module

Engine models and codes are listed on attachments.

The following are the certification exhaust emission standards for this engine family in grams per brake horsepower-hour:

<u>Total Hydrocarbons</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>	<u>Particulates</u>
1.3	15.5	4.0	0.10

The following are the certification exhaust emission values for this engine family in grams per brake horsepower-hour:

<u>Total Hydrocarbons</u>	<u>Carbon Monoxide</u>	<u>Nitrogen Oxides</u>	<u>Particulates</u>
0.9	1.4	3.9	0.08

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2035 et seq.).

Old Vehicle Engine Executive Order

CATERPILLAR, INC.

EXECUTIVE ORDER A-13-119-1
(Page 2 of 2)

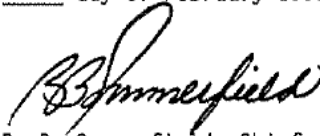
BE IT FURTHER RESOLVED: That the aforementioned engine family has been conditionally certified subject to the following conditions:

1. Any engine which employs a defeat device shall not be covered by this Executive Order.
2. Within 120 days following the issuance of Executive Order A-13-119, the manufacturer must show cause, to the satisfaction of the Executive Officer or his designee, that the strategy for fuel injection timing, including timing during the fuel economy mode, is not a defeat device.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachments.

Executed at El Monte, California this 25th day of February 1998.


R. B. Summerfield, Chief
Mobile Source Operations Division