

COMPLIANCE ASSISTANCE BULLETIN

January 2015

Conditionally Certified Lambda Management System Retrofits

In order to comply with the ag operated, spark-ignited engine nitrogen oxides (NO_x) and carbon monoxide (CO) emission requirements of District Rule 4702 – *Internal Combustion Engines*, many operators elected to install the Lambda Management System (LMS). The District granted a Conditional Certification to the LMS in 2008 for installations on spark-ignited engines rated at 250 BHP or less. (*If you have engine greater than 250 BHP with a LMS, see the Compliance Assistance Bulletin for Non-Certified Lambda Management System Retrofits*)

Recently, the District has streamlined the requirements for engines retrofitted with a Conditionally Certified LMS, and has begun the process of revising permits and registrations with these conditions. Once the revised permit or registration is received, please carefully review the new conditions. The streamlined requirements for engines with Conditionally Certified LMS Retrofits include:

- **Initial and Ongoing Emissions Monitoring** – Rule 4702 required initial monitoring of the stack concentrations of NO_x, CO & O₂ using a portable analyzer, along with ongoing emissions monitoring every 60 months thereafter. NO_x emissions must be reduced by 80% across the catalyst, or have exhaust stack readings of no more than 90 ppm. CO emissions must not exceed 2,000 ppm at the stack. If you completed the initial monitoring and have been performing ongoing emissions monitoring, please continue to do so and maintain copies of the analyzer readings. If you have not performed emissions monitoring in accordance with the above referenced timeframes, monitoring will need to be conducted by no later than July 1, 2015.
- **Monthly Inspections** – At least once during each month that the engine operates, the operator must monitor the emission indicator light on the LMS during normal operation, and record the indicator light color. If the light is either YELLOW or RED, then the operator must take corrective action to return the system to the optimum LMS setting (GREEN light). Monthly inspections are not required if the engine is not in operation, however an inspection shall be performed within a week of restarting the engine, unless an inspection has been performed within the last calendar month.

The District has developed a new recordkeeping form intended specifically for engines retrofitted with the LMS to assist with the recordkeeping requirements outlined in the permit or registration conditions. Additional copies of the form can be found at http://www.valleyair.org/busind/comply/compliance_forms.htm.

Please be advised that the Compliance Assistance Bulletin “District Rule 4702 – Conditionally Certified Exhaust Control Systems” dated July 2010 is superseded by this Compliance Assistance Bulletin and the enforcement discretion identified in the July 2010 bulletin is no longer in effect.

Should you have questions or need clarification regarding the information contained within this bulletin, please do not hesitate to contact Jennifer Ledergerber by telephone at (661) 392-5533 or by email at jennifer.ledergerber@valleyair.org.

LAMBDA MANAGEMENT SYSTEM (LMS) – ENGINE RECORD KEEPING FORM

ENGINE # _____

PERMIT/ PEER # _____

CALENDAR YEAR: _____

DATE & TIME	HOUR METER	DID ENGINE OPERATE THIS MONTH?	INITIAL LAMBDA CONTROLLER LIGHT COLOR	DESCRIBE ADJUSTMENTS MADE TO ENGINE AND/OR LMS TO RETURN LMS TO GREEN LIGHT STATUS	ENGINE INSPECTION PERFORMED	LMS INSPECTION PERFORMED	INITIALS OF RESPONSIBLE PERSON
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	
		<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> GREEN LIGHT <input type="checkbox"/> YELLOW LIGHT <input type="checkbox"/> RED LIGHT <input type="checkbox"/> OFF/ NO LIGHT	LIGHT COLOR AFTER ADJUSTMENT: DATE & TIME COMPLETED:	<input type="checkbox"/> YES <input type="checkbox"/> NO	<input type="checkbox"/> OXYGEN SENSOR- replaced every 2,000 hours <input type="checkbox"/> CATALYST- washed or replaced every 8,000 hours	

TOTAL HOURS ENGINE OPERATED FOR THE CALENDAR YEAR: _____

FUEL TYPE: PUC NATURAL GAS OTHER: _____



FORM INSTRUCTIONS:

TOP RIGHT CORNER OF THE FORM: RECORD THE ENGINE NUMBER (THIS MAY BE AN ENGINE SERIAL NUMBER), THE PERMIT OR PEER NUMBER, AND THE CALENDAR YEAR.

COLUMN 1: ENTER THE DATE AND TIME

COLUMN 2: ENTER THE HOUR METER READING

COLUMN 3: CHECK THE APPROPRIATE BOX TO INDICATE IF THE ENGINE OPERATED DURING THE MONTH.

COLUMN 4: CHECK THE APPROPRIATE BOX TO INDICATE THE LIGHT COLOR OF THE LAMBDA MANAGEMENT CONTROLLER. THE TOP THREE LIGHTS ARE RED, GREEN, AND YELLOW:

- RED INDICATES A RICH FUEL CONDITION
- GREEN INDICATES EMISSIONS COMPLIANCE
- YELLOW INDICATES A LEAN FUEL CONDITION

THE BOTTOM TWO LIGHTS ARE GREEN AND RED:

- THE GREEN LIGHT INDICATES SYSTEM POWER IS ON.
- THE RED LIGHT INDICATES THE O2 SENSOR POWER IS ON.

COLUMN 5: IF THE TOP LIGHTS ARE EITHER RED OR YELLOW, MAKE ADJUSTMENTS TO THE LAMBDA MANAGEMENT CONTROLLER AND/OR ENGINE. DESCRIBE THE ADJUSTMENT(S) MADE IN THE SPACE PROVIDED. ADDITIONAL NOTES MAY BE ENTERED ON THE BOTTOM OF THIS PAGE. RECORD THE LIGHT COLOR AFTER THE ADJUSTMENT(S) IN THE SPACE PROVIDED. IF THE LIGHT CANNOT BE RETURNED TO A GREEN STATUS AFTER 8 HOURS, CONTACT THE DISTRICT AND SHUT THE ENGINE DOWN WITHIN THE FOLLOWING HOUR. DO NOT OPERATE THE ENGINE UNTIL AFTER MAKING ALL NECESSARY REPAIRS TO RETURN THE SYSTEM TO GREEN LIGHT STATUS. ENTER THE DATE AND TIME THE ADJUSTMENT WAS SUCCESSFUL OR WHEN THE ENGINE WAS SHUT DOWN.

COLUMN 6: CHECK THE APPROPRIATE BOX TO INDICATE IF ENGINE MAINTNANCE INSPECTION WAS PERFORMED AS RECOMMENDED BY THE MANUFACTURER OR EMISSIONS CONTROL SYSTEM SUPPLIER. FOR EXAMPLE: CHECK ENGINE FLUID LEVELS, BATTERY, CABLES AND CONNECTIONS; CHANGE ENGINE OIL FILTERS; REPLACE ENGINE COOLANT; AND/OR OTHER OPERATIONAL CHARACTERISTICS AS RECOMMENDED BY THE MANUFACTURER OR SUPPLIER. KEEP ALL DOCUMENTATION FOR A MINIMUM OF 5 YEARS.

COLUMN 7: CHECK THE OXYGEN SENSOR BOX IF THE OXYGEN SENOR WAS REPLACED DURING THE MONTH. OXYGEN SENSOR REPLACEMENT IS REQUIRED AT LEAST EVERY 2,000 HOURS OF OPERATION. CHECK THE CATALYST BOX IF THE CATALYST WAS WASHED OR REPLACED DURING THE MONTH. CATALYST WASHING OR REPLACEMENT, AS NECESSARY, IS REQUIRED AT LEAST ONCE EVERY 8,000 HOURS OF OPERATION. KEEP ALL RECORDS OF OXYGEN SENSOR REPLACEMENT AND CATALYST WASHING OR REPLACEMENT FOR A MINIMUM OF 5 YEARS.

COLUMN 8: ENTER THE INITIALS OF THE PERSON RESPONSIBLE FOR THE MAINTENANCE AND RECORD KEEPING OF THE ENGINE AND LAMBDA MANAGEMENT SYSTEM.

BOTTOM OF FORM: RECORD THE TOTAL HOURS THE ENGINE OPERATED DURING THE CALENDAR YEAR. CHECK THE BOX FOR THE TYPE OF FUEL USED. KEEP RECORDS OF FUEL PURCHASE RECEIPTS AND/OR BILLING STATEMENTS FOR A MINIMUM OF 5 YEARS.

*****EMISSIONS MONITORING REQUIREMENT: CONDITIONALLY CERTIFIED LAMBDA MANAGEMENT SYSTEM ENGINES ARE REQUIRED TO COMPLETE INITIAL PORTABLE ANALYZER MONITORING FOR NOx & CO BY JULY 1, 2015. ONGOING PORTABLE ANLYZER MONITORING IS REQUIRED AT LEAST ONCE EVERY 60 MONTHS. SEE PERMIT OR PEER FOR MONITORING SPECIFICS.**

******TESTING REQUIREMENT: NON-CERTIFIED LAMBDA MANAGEMENT SYSTEM ENGINES ARE REQUIRED TO HAVE AN INITIAL SOURCE TEST FOR NOx, CO & VOC BY JULY 1, 2015. RECURRING SOURCE TESTING FOR NOx, CO & VOC IS REQUIRED EVERY 60 MONTHS AFTER THE INITIAL SOURCE TEST DATE. PORTABLE ANALYZER MONITORING FOR NOx & CO MUST BE CONDUCTED AT LEAST ONCE EVERY 3 MONTHS EXCEPT WHEN A SOURCE TEST IS CONDUCTED. SEE PERMIT OR PEER FOR MONITORING SPECIFICS.**

ADDITIONAL NOTES:

DATE	NOTES
_____	_____
_____	_____
_____	_____
_____	_____