# Developing Survey Forms for Data Analysis of HDVs

6<sup>th</sup> PEMS Workshop

March 17-18, 2016

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## **Goals of This Research**

#### Understand Inventory

Provide researchers quick access to high quality data with context of the fleet, emissions, and activity

Provide data to help make air quality decisions



## **Understanding Inventory**

#### Vehicle measurements

- Emissions
- Activity
- Fleet information
  - Inventory
  - Daily usage
  - Vocation
  - DMV databases





## What Surveys are Needed?

#### Fleet Interview

Detailed vehicle survey (photos)

Daily driver survey

Trailer survey (Aero)

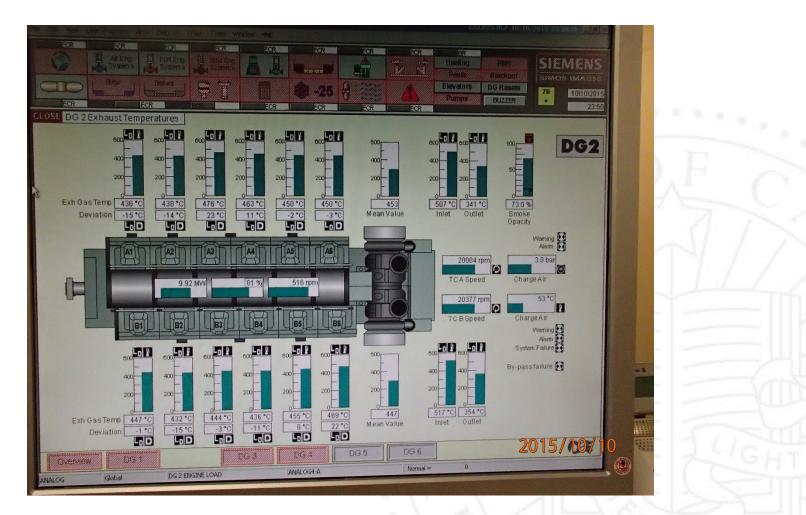


## Photo Data Logging Story









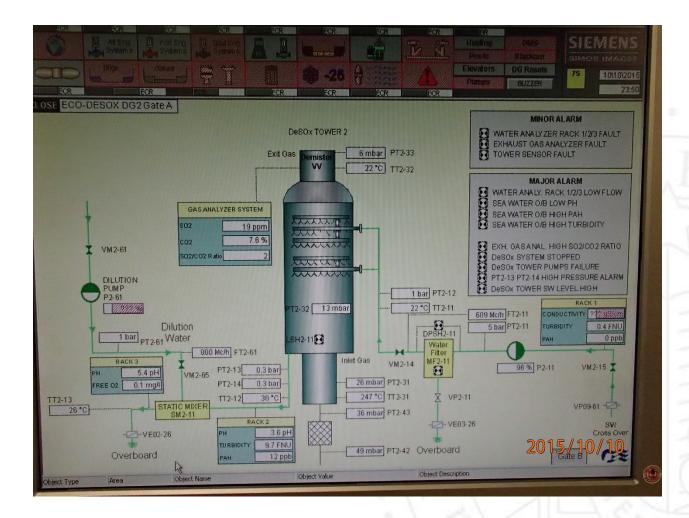


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COD     Color     Color <t< td=""><td></td></t<>	
LOSE Fuel Management	-
B         B	
Temperature         92.2 °C         91.7 °C         34.9 °C         34.9 °C         35.3 °C         34.5 °C         35.3 °C           Density         0.91845 g/cm <sup>3</sup> 0.97046 g/cm <sup>3</sup> 0.85449 g/cm <sup>3</sup> 0.85449 g/cm <sup>3</sup> 0.85849 g/cm <sup>3</sup> 0.85889 g/cm <sup>3</sup> 0.85849 g/cm <sup>3</sup> 0.85889 g/cm <sup>3</sup>	
Mass Flow Return         4894.4 kg/h         5417.1 kg/h         0.0 kg/h         5617.4 kg/h         4902.0 kg/h         4662.9 kg/h           Fuel Grade In Use         UNDEFINED	
Mass Cons. Total         7812.6 MT         1502.4 MT         10000.0 MT         7165.0 MT         10000.0 MT         1562.8 MT         3165.2 MT           Instan. Mass Cons.         0.0 kg/h         2057.1 kg/h         0.0 kg/h         324.2 kg/h         1240.0 kg/h         0.0 kg/h         313.5 kg/h           Fuel Cons. IF 0380	
Fuel Cons. IF.0380 LS	
Fuel Cons.gikWh     0.0 gikWh     0.0 gikWh     0.0 gikWh     199.5 gikWh       RESET     RESET     RESET     RESET	
VOYAGE FUEL SUMMARY Dieseis Boilers Total  IF0380	
Fuel Cons. IF 0380     Fuel Ship Fuel Cons       Fuel Cons. IF 0380LS     Average Diesel SFC       Fuel Cons. MGO     Diesel Mean SFC	
Total Fuel Cons.         0.0 MT         0.0 MT         0.0 MT         Ship Mean SFC         2015/10/10	
Energy	









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GAS ANALYSIS         SO2       21       ppm         CO2       7,68       %         SO/CO2       2,71       333 °C         PROCESS DATA       AVERAGE VALUE         OG LOAD       79       %         SW FLOW       590       m3/h         DIL. W. FLOW       812       m3/h         ISABLED       ENABLED       High BackPressure	
CO2     7,68     %       SO/CO2     2,71       AVERAGE VALUE       OG LOAD     79     %       SW FLOW     590     m3/h       OIL. W. FLOW     812     m3/h	
SO/CO2     2,71       PROCESS DATA       OG LOAD       79       %       SW FLOW       590       Mark       OIL. W. FLOW       812       m3/h       ICAPIED	mBar
PROCESS DATA         G LOAD       79 %         W FLOW       590 m3/h         IL. W. FLOW       812 m3/h         CDF       SETTINGS         AVERAGE VALUE         34,9 mBar         CDF         SETTINGS	
G LOAD 79 % W FLOW 590 m3/h IL. W. FLOW 812 m3/h	
OG LOAD     79     %       SW FLOW     590     m3/h       DIL. W. FLOW     812     m3/h	
SW FLOW 590 m3/h DIL. W. FLOW 812 m3/h	
VPO2-46 DIL. W. FLOW 812 m3/h AVERAGE VALUE	
ISABLED ENABLED High BackPressure 48,4 mBar	
Threshold	
CDF REGULATION	-42 mBar
r. HH:MM:SS Date Status Alarm	
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eSOX DG#2 TOWER PUMPS DG#2 ANALYZERS DG#2 HOM	

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#### **Fleet Interview Form: 1 of 4**

#### CE-CERT SCR Study HD On-road Testing and Analysis, Establishment Interview

Form completed

Database completed

I	· · · · · · · · · · · · · · · · · · ·
Name of establishment	Interview date
Interviewee name	Interviewer name
Telephone number of point of contact ( )	
Address of company (main HQ or	
where interviewee is domiciled)	
Description of industry / services provided	
Establishment's North American Industry Classificatio	n (NAICS) code
Types of delivery (local daily, in-state, interstate)	
Est of number of paid employees (including drivers)	
Est of number of contract personnel (including drivers	s)
Number of sites / hubs / distribution centers	
from which operations are performed:	
Addresses of sites / hubs / distribution centers	
(only name of city if outside of HQ city)	



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#### Fleet Interview Form: 2 of 4

Estimated counts / types of trucks and trailers owned by company (i.e., 8 reefers, 32 Class 4 walk-in, etc.)	
Estimated counts / types of trucks leased to company and approximate lease duration	
Estimated counts / types of trucks and trailers contracted to company full-time / throughout the year	
Estimated counts / types of trucks and trailers contracted to company part-time / part of the year Addresses of sites / hubs / distribution centers (only name of city if outside of HQ city)	





## Fleet Interview Form: 3 of 4

Form completed	Database completed	
Status of permission to perform truck		
nventories at all "local" (same city) sites		
Name and contact info for point of contact with		
whom to coordinate at each of the sites		
Request establishment records of truck		
nventory (i.e., maintenance database, paper		
copies, other)	5	
	17-	
Who performs major truck maintenance (in-		
house / outsourced)? If outsourced, name of		
company / contact person. Could we contact to		
obtain truck info database / records?		
		1.1



#### **Fleet Interview Form: 4 of 4**

	•	
Other Comments / info		

WA 3-12 Establishment Interview Form\_20160114Page 2 of 2

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## **Detailed Photo Survey : 1 of 4**

#### CE-CERT SCR Study HD On-road Testing and Analysis, Establishment Inventory

Please collect the following information at each site where an inventory is conducted. Much of this information may be available remotely (i.e., information collected through e-mail transmission of inventory files maintained by the establishment). All local sites for each establishment will be inventoried. Inventories will only be performed for remote sites (in other cities or states) if the information can be obtained remotely (i.e., by e-mail, without on-site visits). Establishment Information

Name of establishment		Interview date	
Site location		Interviewer name	
Representative phone	( )	Site representative	

Truck Information

License plate				
	Truc	k co. ID		
		VIN		
Start time			End time	
	1 License plate			
-	-			
	2	Full front		
	3	Front left angle side		
	4	Front right angle side		
	5	5 Truck Co. ID		
	6	6 Additional outside door information		
	7	7 Door jamb labels		
			e ratio	

License plate			ate			
Truck co. ID			. ID			
			VIN			
				L	E a d Aliana	-
Sta	art ti	me			End time	
	1	Lice	License plate			
	2	Ful	Full front			
	3	Fro	Front left angle side			
	4	Fro	Front right angle side			
	5	Tru	ick Co	o. ID		
	6	Additional outside door information				
	7	Door jamb labels				
D VIN						
<ul> <li>Axle rational</li> </ul>			e ratio			

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## **Detailed Photo Survey: 2 of 4**

8	OBD connection				
9	HEM logger ID and CERT ID				
10	Odometer				
11	Inside cabin (middle section)				
12	Tire and tire size				
13	SCR tank cap				
14	Back right angle side				
15	Full back				
16	Tailpipe				
17	Back left angle side				
18	Additional outside door information				
19	Engine body				
20	Engine labels				
	Emissions control equipment				
	Rated engine information				
Comments:					

Photo Establishment Inventory\_Pages 1 and 2\_20160114

	8	OBD connection					
	9	HEM logger ID and CERT ID					
	10	Odometer					
	11	Inside cabin (middle section)					
	12	Tire and tire size					
	13	SCR tank cap					
	14	Back right angle side					
	15	Full back					
	16	Tailpipe					
	17	Back left angle side					
	18	Additional outside door information					
	19	Engine body					
	20	Engine labels					
		Emissions control equipment					
		Rated engine information					
	_						
	Comments:						
l		Page 1 of 2					

Page 1 of 2

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## **Detailed Photo Survey : 3 of 4**

#### Establishment Information (contd.)

Name of establishment

Interview Date

Truck Information (contd.)

License plate					
Truck co. ID					
		VIN			
St	art ti	me		End time	
	1	License plate			
	2	Full fro	nt		
	3	Front left angle side			
	4	Front right angle side			
	5	Truck Co. ID			
	6	Additio	nal outside	e door information	
	7	Door ja	Door jamb labels		
			1		
	Axle ratio				
	8	OBD connection			
	9	HEM logger ID and CERT ID			
	10	Odometer			
	11	Inside cabin (middle section)			

L	License plate						
	Truck co. ID						
	VIN						
Sta	art ti	me			End time		
	1	License plate					
	2	Full front					
	3	Front left angle side					
	4	Front right angle side					
	5	Truck Co. ID					
	6	Additional outside door information					
	7	Door jamb labels					
			VIN				
			Axle	e ratio			
	8	OBD connection					
	9	HEM logger ID and CERT ID					
	10	Odometer					
	11	Inside cabin (middle section)					

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## **Detailed Photo Survey : 4 of 4**

Tire and tire size 12 13 SCR tank cap Back right angle side 14 15 Full back 16 Tailpipe Back left angle side 17 Additional outside door information 18 Engine body 19 20 Engine labels Emissions control equipment Rated engine information Comments:

	12	Tire and tire size				
	13	SCR tank cap				
	14	Back right angle side				
	15	Full back				
	16	Tailpipe				
	17	Back left angle side				
	18	Additional outside door information				
	19	Engine body				
	20	Engine labels				
		Emissions control equipment				
		Rated engine information				
	Comments:					

Photo Establishment Inventory\_Pages 1 and 2\_20160114















































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RUCKS, INC. P. P. U.S.A. O.: CXU613 G120820002 277 MR21064	FRONT: 5443 IST INT: 9072 2ND INT: 0 3RD INT: 0 REARMOST: 9072 VEHICLE TYPE:	S VEHICLE CON MANUFACTURE KG (12000 KG (20000 KG (0 KG (0	IFORMS TO AL SHOWN ABOY LB) WITH LB) WITH LB) WITH LB) WITH	2KS, INC. IN 08/ L APPLICABLE U. /E. TIRES 295/75R22.5G 295/75R22.5G 295/75R22.5G	2012 S. FEDERAL MOTOR , 22.5 X ; 22.5 X ; , , , , , , , , , , , , , , , , , ,

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## **Detailed Photo Survey: Pictures**

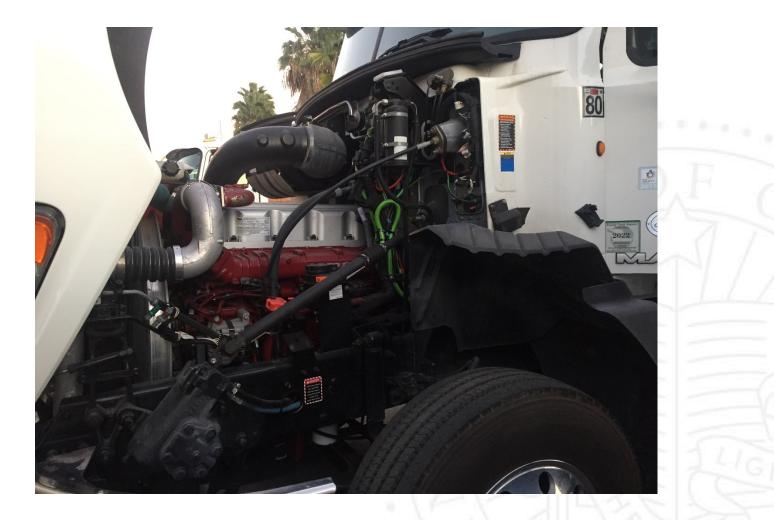


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### **Detailed Photo Survey: Pictures**



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## **Detailed Photo Survey: Pictures**

IPORTANTS MOTEUR         DEL: MP8-415C       SERIAL NO. 1017135         OTEUR:       NO. SERIE         IE @ ADVERTISED HP       IDLE SPEED       ENGINE BRAKE         CARB. @ PUISS. SPEC.       RALENTI       FREIN MOTEUR         100       mm³ / STROKE       550-700       RPM POWERLEASH         101       MOTEUR       S50-700       RPM POWERLEASH         101       MOTEUR       S00       RIMM         101       MOTEUR       S00       RIMM         101       MOTEUR       RIMM       RIMM         101       MOTEUR       RIMM       RIMM         102       MOTEUR       RIMM       RIMM         103       RIMM       RIMM       RIMM	NOx FEL NOx FNE (g/Bhp-hr) NMHC + NOx FEL NMHC + NOx FNE (g/Bhp-hr) PARTICULATE FEL 0.00 PARTICULAIRE FNE (g/Bhp-hr) LABEL NO	

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## **Detailed Photo Survey: Ex Orders**



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## **Detailed Photo Survey: Ex Orders**

#### EXECUTIVE ORDERS LISTING

To view a specific Executive Order, please click on the appropriate link to view a category. The link for each category is the <u>date</u> that new Executive Orders were last added to that directory. Links with "new" next to them have been updated in the last 5 days.

	Executive Orders										
Model Year	PC_LDT_MDV_MDEV	HDE_HDV_MDE	ONMC	OFMC_ATV_UV_SV_SCAR_eGC							
				Green Sticker	Red Sticker (OFMC, ATV only)						
2017	03/17/16	03/02/16	03/07/16	03/07/16	03/02/16						
2016	03/17/16	03/09/16	03/17/16	03/17/16	03/07/16						
2015	01/04/16	01/25/16	12/28/15	01/04/16	11/30/15						
2014	03/18/15	12/29/14	12/09/14	01/09/15	07/25/14						
2013	10/12/15	02/07/14	01/03/14	12/27/13	08/12/13						
2012	02/13/13	12/14/12	09/23/13	12/31/12	12/31/12						
2011	12/31/12	03/27/15	12/13/13	12/28/12	12/28/12						
2010	10/29/14	10/23/14	12/31/12	02/07/11	11/05/10						
2009	12/21/12	03/19/13	12/28/10	12/31/12	12/31/12						
2008	10/31/13	07/05/12	12/31/12	12/31/12	04/30/14						

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## **Detailed Photo Survey: Ex Orders**

#### Friday, March 18, 2016

#### **UP LINKS**

- ARB Programs
  - Mobile Sources
     Manufacturers
     On-Road New
     Vehicle and

Engine Certifications

#### **PROGRAM LINKS**

- Background
- Certification Overview
- Certification Regulations, Test Procedures, and Policies
- Executive Orders Listing
- Executive Orders Overview
- How to Search for an Executive Order
- Proposed Amendments to the Alternative Fuel Certification Procedures

#### RESOURCES

- O Contact Us
- Join Any Mobile Sources Email List(s)
- RSS / Newsfeed

.ca.gov/msprog/onro

Heavy-Duty Engines and Vehicles, including Urban Buses, and Engines Used in Diesel or Incomplete Medium-Duty Vehicles of 8501-14000 Pound GVWR Executive Orders -2012

New Executive Orders added December 14, 2012

Listed below are links to the Executive Orders for Heavy-Duty Engines and Vehicles, including Urban Buses, and Engines Used Diesel or Incomplete Medium-Duty Vehicles of 8501-14000 Pound GVWR for the 2012 model year. To resort alphabetically or by date, please click on the header "Executive Orders" or "Modified."

File name of Executive Orders for Heavy-Duty Engines and Vehicles, including Urban Buses, and Engines Used in Diesel or Incomplete Medium-Duty Vehicles of 8501-14000 Pound GVWR: Manufacturer\_Category 1B\_EO Number\_All Engine Displacements (in liters)\_NMHC+NOX (or NOx) and PM (in that order) Standards or FELs (in g/bhp-hr)\_Non Diesel or Non Gasoline Fuel 3. Click HERE for an explanation of the information displayed in the file name of Executive Orders.

ting	Executive Orders	Modified
verview	azuredynamics_hdov_a3780005_5d4_0d20_e85.pdf	Nov 14 2011
1	baf_hdoe_a3640031_6d8_0d20-0d01_cng.pdf	Oct 03 2011
nts to	baf_hdoe_a3640032_6d8_0d20-0d01_cng.pdf	Oct 03 2011
	baytech_hdoe_a3300233_6d0_0d20_cng.pdf	Aug 29 2012
ires	baytech_hdoe_a3300233r1_6d0_0d20_cng.pdf	Dec 12 2012
	baytech_hdoe_a3300233r2_6d0_0d20_cng.pdf	Dec 12 2012
	baytech_mdoe_a3300234_6d0_0d20_cng.pdf	Dec 12 2012
es	baytech_mdoe_a3300234r1_6d0_0d20_cng.pdf	Dec 12 2012
	biphase_hdoe_a3600017_5d4_0d20_lpg.pdf	Oct 31 2011
	biphase_hdoe_a3600018_6d0_0d20_lpg.pdf	Oct 31 2011
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## **Detailed Photo Survey: Ex Orders**

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## **Detailed Photo Survey: Ex Orders**

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duty dies	el engine	s and veh	icles (Te	st Proced		nd 3) the d		ndina cert	ification le	evels for	this end	ine fam	
"Diesel" (	CO FUR	O and NT	E certific	ation con	noliance	may have	been der	monstrate	d by the	manufact	turer as r	orovide	d
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FEL	•	•	•	•	•	. •	•	•	0.00	0.00	· ·		
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BE IT FUI limitation emission	RTHER RE s and cor standard	STD=stands particulate matter SOLVED: nditions.	rd or emission ar: нсно=fo : Certifica The FEL cation pu	ation to th (s) is the curposes in	ne FEL(s) emission	ion limit; CER	ove, as a ared by t anking, or	pplicable he manuf trading (	, is subject facturer a (ABT) pro	t to the find serves	ollowing s in lieu (	terms, of an	en;
BE IT FUI limitation determin BE IT FUI BE IT FUI BE IT FUI Engine fa Exhaust Vehicles'	THER RE s and cor standard ing comp RTHER RE RTHER RE RTHER RE mily certi Emission	3 STD-stands particulate mattr ESOLVED: Inditions. I for certifi liance of a ESOLVED: filed unde s Standar Dec. 12,	Certification Certification Certification Cation put any engin Except r 13 CCF ds and T 2002, as	ation to the s) is the c urposes in the in this in vehicle 1956.8(i est Proce last ame	L=family emission the FEL(s) emission thany ave family an e applicat a)(6)(C) [ edures fo ended Se	) listed ab level decl eraging, ba	reartification loop ove, as a ared by t anking, or nce with npted per Ox] and s d Subseq 0, shall b	pplicable ne manuf r trading ( such ABT r 13 CCR section 35 quent Moo be provide	is subject facturer a ABT) proj program 1956.8(a 5.B.4 of th del Heavy	ethydrocarbon to the find serves grams. If s. )(6)(B), e e incorpo -Duty Die	iollowing s in lieu of t will be t engines in prated "C esel Eng	terms, of an used fo n this californ ines an	or ia
BE IT FUI emission determin BE IT FUI limitation emission determin BE IT FUI engine fa Exhaust Vehicles' Idle'' labe BE IT FUI certificati	THER RE THER RE S and cor standard ing comp RTHER RE mily certi Emission adopted I that sha RTHER RE on compl	() STD-stand, particulate math additions. I for certifi liance of a ESOLVED: fied unde s Standar Dec. 12, III be affix ESOLVED:	ard or emission ar, HCHO=for Certific; The FEL( cation pur- any engine Except r 13 CCF ds and T 2002, as ed to the For the n 13 CCR	ation to the s) is the c urposes in the in this f in vehicle (1956.8(i) est Proce last ame vehicle in e listed en 1965 (em	L=family emission here FEL(s) emission h any avec family an e applicat a)(6)(C) [ edures for ended Sento which igine moon ission con	) listed ab level decl eraging, ba d complia tions exen (30 g/hr Ni r 2004 an p. 27, 201	reartification la ove, as a ared by t anking, or nce with npted per Ox] and s d Subseq 0, shall b he is insta anufactur	pplicable ne manual r trading ( such ABT r 13 CCR section 35 quent Moc be provide alled. rer has su	, is subject facturer a ABT) pro program 1956.8(a 5.B.4 of th del Heavy ed with an	ethydrocarbon to to the find server grams. If is. )(6)(B), e e incorpo -Duty Die approve he mater	engines in orated "Cesel Eng d "Certific rials to de	terms, of an used fo n this Californ ines ar ied Cle	or ia ia an trate
BE IT FUI Imitation determin BE IT FUI Imitation determin BE IT FUI engine fa Exhaust Vehicles' Idle" labe BE IT FUI certificati 13 CCR 2	THER RE Standard THER RE Standard THER RE Standard RTHER RE Imily certi Emission ' adopted I that sha RTHER RE on compl 035 et se	at strb-stands particulate math ESOLVED: ditions. for certifi- liance of a ESOLVED: fied unde s Standar Dec. 12, all be affix ESOLVED: iance with q. (emissi	Certification put any engine Except r 13 CCF r 13 CCF r 13 CCF r 2002, as ed to the r 13 CCR on control	ntest cap: FEI maldehyde; ation to th (s) is the our poses in ne in this f in vehicle (a 1956.8(i est Proce last ame vehicle in 1965 (em of warrant	L=family emission on any aver family any e application a)(6)(C) [ edures for anded Se nto which igine moo ission co by).	) listed ab level decl rraging, ba d complia tions exen (30 g/hr Ni r 2004 and p. 27, 201 n the engin dels the m	reartification la ove, as a ared by t anking, or nce with npted per Ox] and s d Subseq 0, shall b he is insta anufactuu (s), 13 CC	pplicable he manuf r trading ( such ABT r 13 CCR section 35 quent Moo be provide alled. rer has su CR 1971 (	is subject facturer a ABT) pro program 1956.8(a 5.B.4 of th del Heavy ed with an ubmitted t (engine m	ethydrocarbon to the find serves grams. If is. )(6)(B), e e incorpo -Duty Die approve he mater banufactu	ollowing s in lieu o t will be t engines in prated "C esel Eng d "Certifi rials to de irer diagr	terms, of an used fo n this Californ ines ar ied Cle	or ia an trate
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## **Detailed Photo Survey: Ex Orders**

www.arb. <b>ca.gov</b>	/msprog/on	road/cert/mdehde	hdv/2012/voi	vo_hhdd_a2420	068_12 C	Q. Search		☆	i 🖸 🖡 -	î
e 📙 PI 📒 CE-C	ert 🔒 uc	R  KJ Home Pj	Emissions	s 📙 Projects 🚺	ј Personal 🔕	Google Translate	🦲 todo 🚺	📙 Google Я	SAE Digital Library	
🕇 🔖 Page:	2 0	f3		- +	Automatic Zoo	om ‡			x e	B
Engine Family	1.Engine Code	2.Engine Model	3 BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak H (for diesel only)	5.Fuel Rate: HP(Ibs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke Opeak torque	8.Fuel Rate: (Ibs/hr) @peak torque	9 Emission Control Device Per SAE J1930	
CVPTH12.8S01	50 State	D13H - 500	500 @ 1700	307.5	174.5	1812 @ 1050	336.8	118.1	TC, CAC, EGR. DDI, ECN DOC, PTOX, SCR. AMOX	
CVPTH12.8S01	50 State	D13H - 475	475 @ 1800	279.7	168.1	1734 @ 1050	324.6	113.8	TC, CAC, EGR, DDI, ECN DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	D13H - 455	455 @ 1700	277.0	157.0	1761 @ 1050	329.0	115.0	TC, CAC, EGR, DDI, ECN DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	D13H - 435	435 @ 1700	286.7	162.7	1711 @ 1050	317.8	111.4	TC, CAC, EGR. DDI, ECN DOC, PTOX, SCR. AMOX	
CVPTH12.8S01	50 State	D13H - 425	425 @ 1700	273.2	155.1	1600 @ 1050	297.7	104.4	TC, CAC, EGR, DDI, ECN DOC, PTOX, SCR, AMOX	
CVPTH12.8501	50 State	D13H - 425	425 @ 1700	258.8	146.9	1807 @ 1050	340.4	119.3	TC, CAC, EGR, DDI, ECN DOC, PTOX, SCR, AMOX	
CVPTH12.8\$01	50 State	D13H - 405	405 @ 1700	250.2	142.0	1508 @ 1000	278.1	92.9	TC. CAC, EGR, DDI. ECM DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	D13H - 405	405 @ 1700	246.2	139.8	1732 @ 1050	326.8	114.6	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	D13H - 375	375 @ 1700	236.7	134.4	1506 @ 1000	277.6	92.7	TC. CAC. EGR, DDI, ECM DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	D13H - 500P	500 @ 1700	298.9	169.7	1765 @ 1050	328.3	115.1	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	D13H - 435P	435 @ 1700	268.4	152.3	1727 @ 1050	321.3	112.6	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMO	
CVPTH12.8S01	50 State	MP8 - 505E	505 @ 1700	308.2	174.9	1824 @ 1100	340.3	125.0	TC. CAC. EGR, DDI, ECM DOC, PTOX, SCR, AMO	
CVPTH12.8S01	50 State	MP8 - 445E	445 @ 1700	286.0	162.3	1780 @ 1100	330.4	121.3	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMOX	
CVPTH12.8S01	50 State	MP8 - 415E	415 @ 1700	266.9	151.5	1702@ 1100	314.4	115.5	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMO	
CVPTH12.8S01	50 State	MP8 - 505C	505 @ 1500	341.9	171.3	1824 @ 1100	336.2	123.5	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMON	
CVPTH12.8S01	50 State	MP8 - 445C	445 @ 1500	311.3	155.9	1780 @ 1100	330.4	121.3	TC, CAC, EGR, DDI, ECM DOC, PTOX, SCR, AMO	



# **Daily Trip Log HDVs**

T	rip	Log

Center for Environmental Research & Technology, UCR

Driver name:	
	Start Time:
Tractor License Plate #	
Trailer License Plate #	
Trailer Type:  Flatbed (non-dropdeck)	Curtainside Container Chassis Tanker
□ Dead Head □ Other	
Trailer length:  53' plus  52' t	to 48' $\Box$ 47' to 40' $\Box$ less than 40'
Load Type:  Goods delivery  Cons	struction
Aero modifications:  tail  ski	rt $\Box$ gap $\Box$ none $\Box$ other
Max load lb.: $\Box < 10,000  \Box < 20k$	$\square <30k$ $\square <40k$ $\square <50k$ $\square 55,000+$



## **Trailer Survey Form: 1 of 2**

Fleet Name:				Survey Form   Address:		
Contact Name:	Pho	ne Number	r/Email:			
TRACTOR FLEET INFORMATI	<u>0N</u>					
# of Tractors your company current	ly owns or le	eases:	Day	v cabs	Sleeper Cabs	Total
How do you track fuel use: 🗆 Ha	nd logs 🗖	Computeri	zed trackin	g 🗖 Real time G	PS/engine signal	s 🗆 other
TRAILER FLEET INFORMATIO	<u>DN</u>					
Total # of trailers (all types) you ow	n and operat	te:				
# of these specific trailer types you	own and ope	rate ( If you	u do not ow	n a trailer-type sp	ecified below but	pull (operate) trailers of
that type that are owned by others, p	lease indica	te that by p	utting "OP	" in the appropriat	e box below):	
Trailer Type		Trailer	Length (fe	et)	]	
	53' plus	52'-48'	47'-40'	Less than 40'		
Flatbed (non-dropdeck)						
Curtainside						
Container Chassis						
Tanker					Grand Total	
Total						



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## **Trailer Survey Form: 2 of 2**

If the company does NOT own or operate any of above trailer types, please return form. Otherwise continue with the survey

Trailer GPS	Tracking Capa	bilities:	Yes		No			
Average Trailer Age:			0-3 yea	ars 3-5	5 years	5-10 years 10+ years		
# of Trailers	s for each Tract	or (on average)	1	2		3 4	More that	n 4
Load Types	: Good	ls delivery	Construct	ion	Agriculture	Other		
	LTL	Parcel	Truckload	Food/Bev	Construction	Dry Bulk	Liquid/Gas	Other
% of								
Fleet								

#### FLEET OPERATION INFORMATION

Please provide approximate percentage (%) of fleet mileage by trip length in table below:

Trip Length	0-25 miles from	25-50	51-75	76-100	101-500	501-1000	1001-1500	1500+
	home base	miles	miles	miles	miles	miles	miles	miles
% of 2015 fleet mileage	%	%	%	%	%	%	%	%

#### Average Annual Vehicle Miles Traveled in 2015:

_		0-1000mi	1000-10000 mi	10000-25000 mi	25000-50000 mi	50000+mi				
a)	Per Tractor:									
b)	Per Trailer:									
<b>c</b> )	California miles:									
Please indicate	if your company p	articipates in a	ny existing fuel-ec	onomy programs o	r uses fuel saving te	chnologies:				
Good Dr	iver" reward progr	am 🗆 US EP.	A SmartWay Veri	fied Tractors	Trailer aerodynami	c devices (e.g. side-skirts,				
wheel covers)	Tractor speed	limiters [	Low rolling re	esistance tires	Tire monitoring or	auto inflation system				
Other										
Would fleet be willing to participate in data logging study with UC Riverside where the fleet receives an incentive? 🗌 Yes 🗌 No										
Comment:										

center for Environmental nescaren a reennology, oen				
Driver name:				
Date: Start Time:				
Tractor License Plate #				
Trailer License Plate #				
Trailer Type: 🗆 Flatbed (non-dropdeck) 🗆 Curtainside 🗆 Container Chassis 🗆 Tanker				
Dead Head      Other				
Trailer length: $\Box$ 53' plus $\Box$ 52' to 48' $\Box$ 47' to 40' $\Box$ less than 40'				
Load Type:  Goods delivery Construction Agriculture Other				
Aero modifications: 🗌 tail 🗌 skirt 🔲 gap 🗌 none 🗌 other				
Max load lb.:				

**Trip Log** Center for Environmental Research & Technology, UCR

Fleet Nam	t Name:Physical Address:									
Contact N	ame:Phone Number/Email:									
<b>FRACTO</b>	R FLEET INFO	ORMATIC	<u> 2N</u>							
f of Tracto	ors your compar	y currentl	y owns or lea	ses:	Da	y cabs	S	leeper Cabs	Total	l
How do y	ou track fuel us	e: 🗆 Har	nd logs 🗖 C	omputeri	zed tracki	ng 🗆 Rea	l time GPS	/engine signal	s 🗆 other	
RAILER	R FLEET INFO	RMATIO	$\overline{N}$							
Гotal # of	trailers (all type	s) you ow	n and operate	:						
<sup>t</sup> of these	specific trailer t	ypes you o	own and opera	ate ( If yo	u do not o	wn a trailer	-type specif	fied below but	pull (operate) t	railers of
	hat are owned by		-	-					<u> </u>	
	Frailer Type	<u> </u>			r Length (f			<u>,</u>		
	funder Type		53' plus	52'-48'	47'-40'	-	un 40'			
F	Flatbed (non-dro	pdeck)								
	Curtainside									
	Container Chassi Fanker	is						rand Total	1	
	anker	Total						frand Total		
the comp	any does NOT		perate any of	above ti	ailer type	s, please ro	eturn form	. Otherwise co	ontinue with th	ie survey
_	S Tracking Cap	-		Yes		No				·
	railer Age:	donnues.		] 0-3 yea	rs $\Box$	3-5 years		-10 years	10+ years	
•	ers for each Trac	tor (on av		] 0 5 yea ] 1		2 years		·	More tha	n 4
		ds deliver		onstruction						
.oad Typ		Parcel			Food/Bev	Agrico				
% of		Parcer	Писк	lload	roou/bev	Collisi	truction	Dry Bulk	Liquid/Gas	Other
Fleet										
FLEET O	PERATION IN	FORMA	<u>TION</u>							
Please pro	vide approximat	te percenta	age (%) of fle	et mileag	e by trip le	ength in tab	le below:			
Trip Le	ength		5 miles from	25-50	51-75	76-100	101-500	501-1000	1001-1500	1500+
0/of 20	)15 fleet mileage		ne base %	miles %	miles %	miles %	miles %	miles %	miles %	miles %
					%0	70	%0	70	70	%0
Average A	Annual Vehicle N		veled in 2015: 0-1000mi		0000 mi	10000-25	000 mi 2	5000-50000 mi	i 50000+mi	
	a) Den Tree			1000 Г			000 III 2.			
	a) Per Trac				-					
	b) Per Trai	ler:		L						
c) California miles:										
Please ind	licate if your co	mpany pa	rticipates in a	any existi	ing fuel-ec	conomy pro	ograms or u	ses fuel saving	g technologies:	
Goo "Goo	od Driver" rewa	rd program	m 🗆 US EF	PA Smart	Way Veri	fied Tracto	ors 🗆 Ti	ailer aerodyna	mic devices (e	.g. side-s
wheel cov	rers) 🗆 Tract	or speed l	imiters [	Low	v rolling re	esistance ti	res 🗆 Ti	ire monitoring	or auto inflatio	on system
☐ Other										
Nould fle	et be willing to p	participate	in data loggi	ng study v	with UC R	iverside wł	nere the flee	et receives an in	ncentive? 🗆 Y	es 🗆 No
Comment			- 00-	J						
,onnent	•									

### **CE-CERT SCR Study HD On-road Testing and Analysis, Establishment Inventory**

Please collect the following information at each site where an inventory is conducted. Much of this information may be available remotely (i.e., information collected through e-mail transmission of inventory files maintained by the establishment). All local sites for each establishment will be inventoried. Inventories will only be performed for remote sites (in other cities or states) if the information can be obtained remotely (i.e., by e-mail, without on-site visits).

### **Establishment Information**

Name of establishment		Interview date	
Site location		Interviewer name	
Representative phone	( )	Site representative	

#### **Truck Information**

icens	se plate					
Truc	k co. ID					
	VIN					
art ti	me End time					
1	License plate					
2	Full front					
3	Front left angle side					
4	Front right angle side					
5	Truck Co. ID					
6	Additional outside door information					
7	Door jamb labels					
	Axle ratio					
8	OBD connection					
9	HEM logger ID and CERT ID					
10	Odometer					
11	Inside cabin (middle section)					
12	Tire and tire size					
13	SCR tank cap					
14	Back right angle side					
15	Full back					
16	Tailpipe					
17	Back left angle side					
18	Additional outside door information					
19	Engine body					
20     Engine labels						
	Emissions control equipment					
□ Rated engine information						
Comments:						
	Truc art ti 1 2 3 4 5 6 7 1 8 9 10 11 12 13 14 15 16 17 18 19 20					

	icone	o nl	ato				
-	License plate Truck co. ID						
-	muc		VIN				
			VIIN				
Sta	art ti	me			End time	=	
	1	Lice	ense	plate			
	2		fror	-			
	3			ft angle sid	e		
	4			ght angle si			
	5		ck Co				
	6	Ado	ditior	nal outside	door inform	ation	
	7	Doo	or jar	nb labels			
			VIN				
			Axle	e ratio			
	8	OB	D cor	nnection			
	9	HEI	M log	ger ID and	CERT ID		
	10	Odometer					
	11	Inside cabin (middle section)					
	12	Tire and tire size					
	13	SCR tank cap					
	14	Back right angle side					
	15	Full	Full back				
	16	Tail	lpipe				
	17	Back left angle side					
	18	Additional outside door information					
	19	19 Engine body					
	20	Eng	gine l	abels			
	Emissions control equipment					ent	
i	□ Rated engine information						
	Commenter						
	Comments:						

### **CE-CERT SCR Study HD On-road Testing and Analysis, Establishment Inventory**

### **Establishment Information (contd.)**

Name of establishment	Interview Date	

#### Truck Information (contd.)

L	icens	se plate				
Truck co. ID						
VIN						
St	art ti	me End time				
	1	License plate				
	2	Full front				
	3	Front left angle side				
	4	Front right angle side				
	5	Truck Co. ID				
	6	Additional outside door information				
	7	Door jamb labels				
		□ Axle ratio				
	8	OBD connection				
	9	HEM logger ID and CERT ID				
	10	Odometer				
	11	Inside cabin (middle section)				
	12	Tire and tire size				
	13	SCR tank cap				
	14	Back right angle side				
	15	Full back				
	16	Tailpipe				
	17	Back left angle side				
	18	Additional outside door information				
	19	Engine body				
Emissions control equipment						
	□ Rated engine information					
Comments:						

L	icens	e plate				
Truck co. ID						
		VIN				
Sta	art ti	me End time				
	1	License plate				
	2	Full front				
	3	Front left angle side				
	4	Front right angle side				
	5	Truck Co. ID				
	6	Additional outside door information				
	7	Door jamb labels				
1		□ Axle ratio				
	8	OBD connection				
	9	HEM logger ID and CERT ID				
	10	Odometer				
	11	Inside cabin (middle section)				
	12	Tire and tire size				
	13	SCR tank cap				
	14	Back right angle side				
	15	Full back				
	16	Tailpipe				
	17	Back left angle side				
	18	Additional outside door information				
	19	Engine body				
	20	Engine labels				
	Emissions control equipment					
	Rated engine information					
	Comments:					

### CE-CERT SCR Study HD On-road Testing and Analysis, Establishment Interview

### Form completed

Database completed

Name of establishment	Interview date							
Interviewee name	Interviewer name							
Telephone number of point of contact     (								
Address of company (main HQ or								
where interviewee is domiciled)								
Description of industry / services provided								
Establishment's North American Industry Classifi								
Types of delivery (local daily, in-state, interstate)	)							
Est of number of paid employees (including drive	ers)							
Est of number of contract personnel (including d	rivers)							
Number of sites / hubs / distribution centers								
from which operations are performed:								
Addresses of sites / hubs / distribution centers								
(only name of city if outside of HQ city)								
Estimated counts / types of trucks and trailers								
owned by company (i.e., 8 reefers, 32 Class 4								
walk-in, etc.)								
waik in, etc.,								
Estimated counts / types of trucks leased to								
company and approximate lease duration								
Estimated counts / types of trucks and trailers								
contracted to company full-time / throughout								
the year								
Estimated counts / types of trucks and trailers								
contracted to company part-time / part of the								
year Addresses of sites / hubs / distribution								
centers (only name of city if outside of HQ city)								

### CE-CERT SCR Study HD On-road Testing and Analysis, Establishment Interview

Form completed	Database completed
Status of permission to perform truck inventories at all "local" (same city) sites	
Name and contact info for point of contact with whom to coordinate at each of the sites	
Request establishment records of truck inventory (i.e., maintenance database, paper copies, other)	
Who performs major truck maintenance (in- house / outsourced)? If outsourced, name of company / contact person. Could we contact to obtain truck info database / records?	
Other Comments / info	