APPENDIX A

HEAVY-DUTY EMISSION TEST RESULTS

Page	Test No.	Page	Test No.
211b Baseline Fuel		**Neat NExBTL™**	
A-1	NPBASECAT C1	A-19	NPADDCAT C1
A-2	NPBASECAT H1	A-20	NPADDCAT H1
A-3	NPBASECAT C1/NPBASECAT H1 Composite	A-21	NPADDCAT C1/NPADDCAT H1 Composite
A-4	NPBASECAT C2	A-22	NPADDCAT C2
A-5	NPBASECAT H7	A-23	NPADDCAT H7
A-6	NPBASECAT C2/NPBASECAT H7 Composite	A-24	NPADDCAT C2/NPADDCAT H7 Composite
A-7	NPBASECAT C3	A-25	NPADDCAT C3
A-8	NPBASECAT H13	A-26	NPADDCAT H13
A-9	NPBASECAT C3/NPBASECAT H13 Composite	A-27	NPADDCAT C3/NPADDCAT H13 Composite
A-10	NPBASE C1	A-28	NPADD C1
A-11	NPBASE H1	A-29	NPADD H1
A-12	NPBASE C1/NPBASE H1 Composite	A-30	NPADD C1/NPADD H1 Composite
A-13	NPBASE C2	A-31	NPADD C2
A-14	NPBASE H7	A-32	NPADD H7
A-15	NPBASE C2/NPBASE H7Composite	A-33	NPADD C2/NPADD H7 Composite
A-16	NPBASE C3	A-34	NPADD C3
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Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASECAT C1
Date: 01/02/2008 Time: 10:50
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.99	in Hg	101.5 kPa
Engine Inlet Air			
Temperature:	73.0	°F	22.8 °C
Dew Point:	48.2	°F	9.0 °C
Abs. Humidity:	49.9	gr/lb	7.1 g/kg
Rel. Humidity:	41	%	
Dilution Air:			
Temperature:	76.0	°F	24.4 °C
Abs. Humidity	18.2	gr/lb	2.6 g/kg
Rel. Humidity:	14	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,335.8	66.15
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.24	0.04
Gas Meter 2:	2.80	0.08
Sample Rate:	1.57	0.04
20X20 Sample Rate:	41.65	1.18
47 mm Sample Rate:	35.36	1.00
Chemistry Sample Rate:	0.148	0.084
Total Flow Rate:	2,414.57	68.46

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		5.45	ppm	
HC Bckgrd	n/a		3.40	ppm	
CO Sample	n/a		11.91	ppm	(Dry)
CO Bckgrd	n/a		0.20	ppm	
NOx Sample	n/a		11.51	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.6981	%	(Dry)
CO2 Bckgrd	n/a		0.0440	%	
CH4 Sample	n/a	n/a	2.29	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.19	ppm	

Particulate Data

Filter Number:	4743.0 (pair)	
Weight Gain:	0.120	mg
Sample Multiplier:	1.543	

Correction Factors

NOx Humidity CF:	0.939
Dry-to-Wet CF, Sample:	0.990
Dry-to-Wet CF, Bckgrd:	0.996
Dilution Factor:	19.51

Test Cycle Data

Sample Time:	1,200.00	sec		
Work:	22.19	hp-hr	16.55	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr
Total Volume (Vmix):	48,288.5	scf	1,367.56	scm

Corrected Concentrations

HC	2.22	ppm	
CO	11.51	ppm	
NOx	11.30	ppm	
CO2	0.6491	%	
CH4	0.21	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.079	g/hp-hr	0.105	g/kW-hr
CO	0.826	g/hp-hr	1.108	g/kW-hr
NOx (Cell)	1.250	g/hp-hr	1.676	g/kW-hr
Particulate	0.008	g/hp-hr	0.011	g/kW-hr
CO2	731.9	g/hp-hr	981.43	g/kW-hr
BSFC	0.507	lb/hp-hr	0.309	kg/kW-hr
NMHC	0.068	g/hp-hr	0.092	g/kW-hr
CH4	0.009	g/hp-hr	0.012	g/kW-hr

Mass Emissions

HC		1.745	grams
CO		18.327	grams
NOx		27.735	grams
Particulate		0.185	grams
CO2		16.240	kg
CH4		0.196	grams
Fuel	11.26 lb	5.11	kg

Analyzed: 02/01/2008 09.55

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASECAT H1
Date: 01/02/2008 Time: 11:30
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.98	in Hg	101.5 kPa
Engine Inlet Air			
Temperature:	80.0	°F	26.7 °C
Dew Point:	49.0	°F	9.4 °C
Abs. Humidity:	51.5	gr/lb	7.4 g/kg
Rel. Humidity:	34	%	
Dilution Air:			
Temperature:	76.0	°F	24.4 °C
Abs. Humidity	18.2	gr/lb	2.6 g/kg
Rel. Humidity:	14	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,319.0	65.67
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.24	0.04
Gas Meter 2:	2.74	0.08
Sample Rate:	1.50	0.04
20X20 Sample Rate:	39.20	1.11
47 mm Sample Rate:	35.24	1.00
Chemistry Sample Rate:	0.145	0.082
Total Flow Rate:	2,395.05	67.91

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		5.48	ppm	
HC Bckgrd	n/a		5.70	ppm	
CO Sample	n/a		7.78	ppm	(Dry)
CO Bckgrd	n/a		0.40	ppm	
NOx Sample	n/a		8.96	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.6992	%	(Dry)
CO2 Bckgrd	n/a		0.0460	%	
CH4 Sample	n/a	n/a	2.19	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.26	ppm	

Particulate Data

Filter Number:	4866.0 (pair)	
Weight Gain:	0.071	mg
Sample Multiplier:	1.595	

Correction Factors

NOx Humidity CF:	0.942
Dry-to-Wet CF, Sample:	0.990
Dry-to-Wet CF, Bckgrd:	0.996
Dilution Factor:	19.49

Corrected Concentrations

HC	0.07	ppm	
CO	7.26	ppm	
NOx	8.77	ppm	
CO2	0.6483	%	
CH4	0.05	ppm	(1.00)

Test Cycle Data

Sample Time:	1,200.00	sec		
Work:	22.33	hp-hr	16.65	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr
Total Volume (Vmix):	47,898.0	scf	1,356.50	scm

Mass Emissions

HC		0.056	grams	
CO		11.473	grams	
NOx		21.446	grams	
Particulate		0.113	grams	
CO2		16.088	kg	
CH4		0.044	grams	
Fuel	11.14 lb		5.05 kg	

Brake-Specific Emission Results

BSHC	(Cell)	0.003 g/hp-hr	0.003	g/kW-hr
CO		0.514 g/hp-hr	0.689	g/kW-hr
NOx	(Cell)	0.960 g/hp-hr	1.288	g/kW-hr
Particulate		0.005 g/hp-hr	0.007	g/kW-hr
CO2		720.5 g/hp-hr	966.17	g/kW-hr
BSFC		0.499 lb/hp-hr	0.303	kg/kW-hr
NMHC		0.002 g/hp-hr	0.003	g/kW-hr
CH4		0.002 g/hp-hr	0.003	g/kW-hr

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Date: 01/02/2008 Time: 10:50 DIESEL 2D, EM-6541-F
Program HDT: 4.12-R HCR: 1.781 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.130 C= 0.870 O= 0.000 X= 0.000

Test Numbers
Cold: NPBASECAT C1 Hot: NPBASECAT H1

Brake-Specific Emission Results

BSHC (Cell)	0.013	g/hp-hr	0.018	g/kW-hr
CO	0.558	g/hp-hr	0.748	g/kW-hr
NOx (Cell)	1.002	g/hp-hr	1.343	g/kW-hr
Particulate	0.006	g/hp-hr	0.007	g/kW-hr
CO2	722.1	g/hp-hr	968.34	g/kW-hr
BSFC	0.500	lb/hp-hr	0.304	kg/kW-hr
NMHC	0.012	g/hp-hr	0.016	g/kW-hr
CH4	0.003	g/hp-hr	0.004	g/kW-hr
Work:	22.31	hp-hr	16.64	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr

Analyzed: 02/01/2008 09:55

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model:	2007 Navistar	Test No.: NPBASECAT C2	DIESEL 2D, EM-6541-F
Engine Desc.:		Date: 01/03/2008 Time: 08:55	HCR: 1.781 FID Resp: 1.00
Engine Cycle:	Diesel	Program HDT: 4.12-R	H= 0.130 C= 0.870 O= 0.000 X= 0.000
Engine S/N:	7046094	Cell: 7 Bag Cart: 7	

Ambient/Test Cell Conditions

Barometer:	29.79	in Hg	100.9 kPa
Engine Inlet Air			
Temperature:	69.0	°F	20.6 °C
Dew Point:	41.7	°F	5.4 °C
Abs. Humidity:	39.2	gr/lb	5.6 g/kg
Rel. Humidity:	37	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	20.2	gr/lb	2.9 g/kg
Rel. Humidity:	16	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,280.1	64.58
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.19	0.03
Gas Meter 2:	2.81	0.08
Sample Rate:	1.62	0.05
20X20 Sample Rate:	39.48	1.12
47 mm Sample Rate:	34.86	0.99
Chemistry Sample Rate:	0.137	0.078
Total Flow Rate:	2,356.24	66.80

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		4.54	ppm	
HC Bckgrd	n/a		3.30	ppm	
CO Sample	n/a		7.85	ppm	(Dry)
CO Bckgrd	n/a		0.70	ppm	
NOx Sample	n/a		11.83	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.7132	%	(Wet)
CO2 Bckgrd	n/a		0.0450	%	
CH4 Sample	n/a	n/a	2.44	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.37	ppm	

Particulate Data

Filter Number:	4962.0-29 (pair)	
Weight Gain:	0.142	mg
Sample Multiplier:	1.458	

Correction Factors

NOx Humidity CF:	0.915
Dry-to-Wet CF, Sample:	0.989
Dry-to-Wet CF, Bckgrd:	0.995
Dilution Factor:	19.11

Corrected Concentrations

HC	1.41	ppm	
CO	7.04	ppm	
NOx	11.61	ppm	
CO2	0.6706	%	
CH4	0.20	ppm	(1.00)

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.62	hp-hr	16.87	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr
Total Volume (Vmix):	47,679.8	scf	1,350.32	scm

Mass Emissions

HC	1.094	grams
CO	11.074	grams
NOx	27.415	grams
Particulate	0.207	grams
CO2	16.565	kg
CH4	0.176	grams
Fuel	11.47 lb	5.20 kg

Brake-Specific Emission Results

BSHC	(Cell)	0.048 g/hp-hr	0.065	g/kW-hr
CO		0.490 g/hp-hr	0.657	g/kW-hr
NOx	(Cell)	1.212 g/hp-hr	1.625	g/kW-hr
Particulate		0.009 g/hp-hr	0.012	g/kW-hr
CO2		732.3 g/hp-hr	982.03	g/kW-hr
BSFC		0.507 lb/hp-hr	0.308	kg/kW-hr
NMHC		0.042 g/hp-hr	0.056	g/kW-hr
CH4		0.008 g/hp-hr	0.010	g/kW-hr

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model:	2007 Navistar	Test No.: NPBASECAT H7	DIESEL 2D, EM-6541-F
Engine Desc.:		Date: 01/03/2008 Time: 09:35	HCR: 1.781 FID Resp: 1.00
Engine Cycle:	Diesel	Program HDT: 4.12-R	H= 0.130 C= 0.870 O= 0.000 X= 0.000
Engine S/N:	7046094	Cell: 7 Bag Cart: 7	

Ambient/Test Cell Conditions

Barometer:	29.80	in Hg	100.9 kPa
Engine Inlet Air			
Temperature:	70.0	°F	21.1 °C
Dew Point:	43.7	°F	6.5 °C
Abs. Humidity:	42.3	gr/lb	6.0 g/kg
Rel. Humidity:	39	%	
Dilution Air:			
Temperature:	76.0	°F	24.4 °C
Abs. Humidity	18.5	gr/lb	2.6 g/kg
Rel. Humidity:	14	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,310.3	65.43
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.19	0.03
Gas Meter 2:	2.81	0.08
Sample Rate:	1.61	0.05
20X20 Sample Rate:	38.74	1.10
47 mm Sample Rate:	34.58	0.98
Chemistry Sample Rate:	0.145	0.083
Total Flow Rate:	2,385.38	67.63

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		3.70	ppm	
HC Bckgrd	n/a		3.40	ppm	
CO Sample	n/a		6.30	ppm	(Dry)
CO Bckgrd	n/a		0.60	ppm	
NOx Sample	n/a		9.21	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.6971	%	(Dry)
CO2 Bckgrd	n/a		0.0480	%	
CH4 Sample	n/a	n/a	2.36	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.34	ppm	

Particulate Data

Filter Number:	4963.0-30 (pair)	
Weight Gain:	0.070	mg
Sample Multiplier:	1.477	

Correction Factors

NOx Humidity CF:	0.922
Dry-to-Wet CF, Sample:	0.990
Dry-to-Wet CF, Bckgrd:	0.996
Dilution Factor:	19.56

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.51	hp-hr	16.79	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr
Total Volume (Vmix):	48,269.2	scf	1,367.01	scm

Corrected Concentrations

HC	0.47	ppm	
CO	5.62	ppm	
NOx	8.92	ppm	
CO2	0.6443	%	
CH4	0.14	ppm	(1.00)

Mass Emissions

HC	0.372	grams		
CO	8.947	grams		
NOx	21.502	grams		
Particulate	0.103	grams		
CO2	16.112	kg		
CH4	0.130	grams		
Fuel	11.16 lb		5.06 kg	

Brake-Specific Emission Results

BSHC (Cell)	0.017	g/hp-hr	0.022	g/kW-hr
CO	0.397	g/hp-hr	0.533	g/kW-hr
NOx (Cell)	0.955	g/hp-hr	1.281	g/kW-hr
Particulate	0.005	g/hp-hr	0.006	g/kW-hr
CO2	715.8	g/hp-hr	959.88	g/kW-hr
BSFC	0.496	lb/hp-hr	0.301	kg/kW-hr
NMHC	0.014	g/hp-hr	0.019	g/kW-hr
CH4	0.006	g/hp-hr	0.008	g/kW-hr

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/03/2008 Time: 08:55 DIESEL 2D, EM-6541-F
Program HDT: 4.12-R HCR: 1.781 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.130 C= 0.870 O= 0.000 X= 0.000

Test Numbers
Cold: NPBASECAT C2 Hot: NPBASECAT H7

Brake-Specific Emission Results

BSHC (Cell)	0.021	g/hp-hr	0.028	g/kW-hr
CO	0.411	g/hp-hr	0.551	g/kW-hr
NOx (Cell)	0.992	g/hp-hr	1.330	g/kW-hr
Particulate	0.005	g/hp-hr	0.007	g/kW-hr
CO2	718.1	g/hp-hr	963.05	g/kW-hr
BSFC	0.497	lb/hp-hr	0.302	kg/kW-hr
NMHC	0.018	g/hp-hr	0.025	g/kW-hr
CH4	0.006	g/hp-hr	0.008	g/kW-hr
Work:	22.53	hp-hr	16.80	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr

Analyzed: 02/01/2008 09:55

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPBASECAT C3
Date: 01/04/2008 Time: 09:10
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.47	in Hg	99.8 kPa
Engine Inlet Air			
Temperature:	69.0	°F	20.6 °C
Dew Point:	44.0	°F	6.7 °C
Abs. Humidity:	43.3	gr/lb	6.2 g/kg
Rel. Humidity:	40	%	
Dilution Air:			
Temperature:	76.0	°F	24.4 °C
Abs. Humidity	52.0	gr/lb	7.4 g/kg
Rel. Humidity:	38	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,237.4	63.36
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.18	0.03
Gas Meter 2:	2.77	0.08
Sample Rate:	1.59	0.05
20X20 Sample Rate:	39.96	1.13
47 mm Sample Rate:	34.47	0.98
Chemistry Sample Rate:	0.142	0.081
Total Flow Rate:	2,313.52	65.60

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		10.63	ppm	
HC Bckgrd	n/a		9.60	ppm	
CO Sample	n/a		9.41	ppm	(Dry)
CO Bckgrd	n/a		0.80	ppm	
NOx Sample	n/a		11.38	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.7340	%	(Dry)
CO2 Bckgrd	n/a		0.0510	%	
CH4 Sample	n/a	n/a	6.48	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	5.62	ppm	

Particulate Data

Filter Number:	4969.0-36 (pair)	
Weight Gain:	0.098	mg
Sample Multiplier:	1.454	

Correction Factors

NOx Humidity CF:	0.924
Dry-to-Wet CF, Sample:	0.982
Dry-to-Wet CF, Bckgrd:	0.988
Dilution Factor:	18.55

Test Cycle Data

Sample Time:	1,214.60	sec		
Work:	22.64	hp-hr	16.88	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr
Total Volume (Vmix):	46,830.5	scf	1,326.27	scm

Corrected Concentrations

HC	1.55	ppm	
CO	8.42	ppm	
NOx	10.98	ppm	
CO2	0.6723	%	
CH4	1.16	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.052	g/hp-hr	0.070	g/kW-hr
CO	0.574	g/hp-hr	0.770	g/kW-hr
NOx (Cell)	1.137	g/hp-hr	1.524	g/kW-hr
Particulate	0.006	g/hp-hr	0.008	g/kW-hr
CO2	720.5	g/hp-hr	966.18	g/kW-hr
BSFC	0.499	lb/hp-hr	0.304	kg/kW-hr
NMHC	0.045	g/hp-hr	0.061	g/kW-hr
CH4	0.045	g/hp-hr	0.061	g/kW-hr

Mass Emissions

HC		1.178	grams	
CO		12.994	grams	
NOx		25.733	grams	
Particulate		0.142	grams	
CO2		16.312	kg	
CH4		1.029	grams	
Fuel	11.30 lb		5.13 kg	

Analyzed: 02/01/2008 09:55

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPBASECAT H13
Date: 01/04/2008 Time: 09:51
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.47	in Hg	99.8 kPa
Engine Inlet Air			
Temperature:	70.0	°F	21.1 °C
Dew Point:	47.8	°F	8.8 °C
Abs. Humidity:	50.1	gr/lb	7.2 g/kg
Rel. Humidity:	45	%	
Dilution Air:			
Temperature:	77.0	°F	25.0 °C
Abs. Humidity	45.9	gr/lb	6.6 g/kg
Rel. Humidity:	33	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,237.0	63.35
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.18	0.03
Gas Meter 2:	2.76	0.08
Sample Rate:	1.58	0.04
20X20 Sample Rate:	37.11	1.05
47 mm Sample Rate:	34.34	0.97
Chemistry Sample Rate:	0.142	0.081
Total Flow Rate:	2,310.19	65.50

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		7.74	ppm	
HC Bckgrd	n/a		7.70	ppm	
CO Sample	n/a		7.24	ppm	(Dry)
CO Bckgrd	n/a		0.10	ppm	
NOx Sample	n/a		8.87	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.7220	%	(Dry)
CO2 Bckgrd	n/a		0.0470	%	
CH4 Sample	n/a	n/a	4.65	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	4.64	ppm	

Particulate Data

Filter Number:	5015.0-37 (pair)	
Weight Gain:	0.064	mg
Sample Multiplier:	1.459	

Correction Factors

NOx Humidity CF:	0.939
Dry-to-Wet CF, Sample:	0.983
Dry-to-Wet CF, Bckgrd:	0.990
Dilution Factor:	18.87

Corrected Concentrations

HC	0.45	ppm	
CO	6.97	ppm	
NOx	8.53	ppm	
CO2	0.6653	%	
CH4	0.26	ppm	(1.00)

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.49	hp-hr	16.77	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr
Total Volume (Vmix):	46,747.8	scf	1,323.92	scm

Mass Emissions

HC		0.340	grams	
CO		10.744	grams	
NOx		20.285	grams	
Particulate		0.093	grams	
CO2		16.114	kg	
CH4		0.226	grams	
Fuel	11.16 lb		5.06 kg	

Brake-Specific Emission Results

BSHC (Cell)	0.015	g/hp-hr	0.020	g/kW-hr
CO	0.478	g/hp-hr	0.641	g/kW-hr
NOx (Cell)	0.902	g/hp-hr	1.210	g/kW-hr
Particulate	0.004	g/hp-hr	0.006	g/kW-hr
CO2	716.5	g/hp-hr	960.83	g/kW-hr
BSFC	0.496	lb/hp-hr	0.302	kg/kW-hr
NMHC	0.013	g/hp-hr	0.018	g/kW-hr
CH4	0.010	g/hp-hr	0.013	g/kW-hr

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/04/2008 Time: 09:10 DIESEL 2D, EM-6541-F
Program HDT: 4.12-R HCR: 1.781 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.130 C= 0.870 O= 0.000 X= 0.000

Test Numbers
Cold: NPBASECAT C3 Hot: NPBASECAT H13

Brake-Specific Emission Results

BSHC (Cell)	0.020	g/hp-hr	0.027	g/kW-hr
CO	0.492	g/hp-hr	0.659	g/kW-hr
NOx (Cell)	0.936	g/hp-hr	1.255	g/kW-hr
Particulate	0.004	g/hp-hr	0.006	g/kW-hr
CO2	717.1	g/hp-hr	961.60	g/kW-hr
BSFC	0.497	lb/hp-hr	0.302	kg/kW-hr
NMHC	0.018	g/hp-hr	0.024	g/kW-hr
CH4	0.015	g/hp-hr	0.020	g/kW-hr
Work:	22.51	hp-hr	16.79	kW-hr
Reference Work:	22.30	hp-hr	16.63	kW-hr

Analyzed: 02/01/2008 09:55

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model:	2007 NAV 6.4L	Test No.:	NPBASE C1	DIESEL 2D, EM-6541-F	
Engine Desc.:	6.4 L (390 CID) V8	Date: 12/17/2007	Time: 09:52	HCR: 1.781	FID Resp: 1.00
Engine Cycle:	Diesel	Program HDT:	4.12-R	H= 0.130 C= 0.870 O= 0.000 X= 0.000	
Engine S/N:	7046094	Cell: 7	Bag Cart: 7		

Ambient/Test Cell Conditions

Barometer:	29.46	in Hg	99.8 kPa
Engine Inlet Air			
Temperature:	72.0	°F	22.2 °C
Dew Point:	48.3	°F	9.1 °C
Abs. Humidity:	51.1	gr/lb	7.3 g/kg
Rel. Humidity:	43	%	
Dilution Air:			
Temperature:	79.0	°F	26.1 °C
Abs. Humidity	47.0	gr/lb	6.7 g/kg
Rel. Humidity:	31	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,267.1	64.20
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.19	0.03
Gas Meter 2:	2.70	0.08
Sample Rate:	1.50	0.04
20X20 Sample Rate:	35.72	1.01
47 mm Sample Rate:	34.01	0.96
Chemistry Sample Rate:	0.140	0.080
Total Flow Rate:	2,338.45	66.30

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		11.19	ppm	
HC Bckgrd	n/a		4.00	ppm	
CO Sample	n/a		54.11	ppm	(Dry)
CO Bckgrd	n/a		0.90	ppm	
NOx Sample	n/a		11.27	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.7190	%	(Dry)
CO2 Bckgrd	n/a		0.0470	%	
CH4 Sample	n/a	n/a	2.64	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.28	ppm	

Particulate Data

Filter Number:	4552.0-8381 (pair)	
Weight Gain:	4.825	mg
Sample Multiplier:	1.556	

Correction Factors

NOx Humidity CF:	0.941
Dry-to-Wet CF, Sample:	0.983
Dry-to-Wet CF, Bckgrd:	0.989
Dilution Factor:	18.82

Test Cycle Data

Sample Time:	1,214.40	sec		
Work:	22.78	hp-hr	16.99	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr
Total Volume (Vmix):	47,327.4	scf	1,340.34	scm

Corrected Concentrations

HC	7.40	ppm	
CO	51.98	ppm	
NOx	10.98	ppm	
CO2	0.6622	%	
CH4	0.48	ppm	(1.00)

Mass Emissions

HC	5.693	grams
CO	81.113	grams
NOx	26.501	grams
Particulate	7.507	grams
CO2	16.238	kg
CH4	0.429	grams
Fuel	11.33 lb	5.14 kg

Brake-Specific Emission Results

BSHC	(Cell)	0.250 g/hp-hr	0.335	g/kW-hr
CO		3.561 g/hp-hr	4.775	g/kW-hr
NOx	(Cell)	1.163 g/hp-hr	1.560	g/kW-hr
Particulate		0.330 g/hp-hr	0.442	g/kW-hr
CO2		712.8 g/hp-hr	955.88	g/kW-hr
BSFC		0.498 lb/hp-hr	0.303	kg/kW-hr
NMHC		0.217 g/hp-hr	0.292	g/kW-hr
CH4		0.019 g/hp-hr	0.025	g/kW-hr

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASE H1
Date: 12/17/2007 Time: 10:32
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.45	in Hg	99.7 kPa
Engine Inlet Air			
Temperature:	73.0	°F	22.8 °C
Dew Point:	49.8	°F	9.9 °C
Abs. Humidity:	54.1	gr/lb	7.7 g/kg
Rel. Humidity:	44	%	
Dilution Air:			
Temperature:	80.0	°F	26.7 °C
Abs. Humidity	45.4	gr/lb	6.5 g/kg
Rel. Humidity:	29	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,287.9	64.79
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.19	0.03
Gas Meter 2:	2.70	0.08
Sample Rate:	1.51	0.04
20X20 Sample Rate:	37.21	1.05
47 mm Sample Rate:	34.12	0.97
Chemistry Sample Rate:	0.136	0.078
Total Flow Rate:	2,360.87	66.94

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		9.45	ppm	
HC Bckgrd	n/a		4.00	ppm	
CO Sample	n/a		53.19	ppm	(Dry)
CO Bckgrd	n/a		0.70	ppm	
NOx Sample	n/a		9.17	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.7087	%	(Dry)
CO2 Bckgrd	n/a		0.0460	%	
CH4 Sample	n/a	n/a	25.74	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	22.90	ppm	

Particulate Data

Filter Number:	4553.0-8382 (pair)	
Weight Gain:	4.650	mg
Sample Multiplier:	1.563	

Correction Factors

NOx Humidity CF:	0.948
Dry-to-Wet CF, Sample:	0.983
Dry-to-Wet CF, Bckgrd:	0.990
Dilution Factor:	19.10

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.52	hp-hr	16.79	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr
Total Volume (Vmix):	47,773.4	scf	1,352.97	scm

Corrected Concentrations

HC	5.66	ppm	
CO	51.32	ppm	
NOx	8.92	ppm	
CO2	0.6533	%	
CH4	4.04	ppm	(1.00)

Mass Emissions

HC	4.393	grams		
CO	80.828	grams		
NOx	21.895	grams		
Particulate	7.266	grams		
CO2	16.171	kg		
CH4	3.642	grams		
Fuel	11.28 lb		5.12 kg	

Brake-Specific Emission Results

BSHC (Cell)	0.195	g/hp-hr	0.262	g/kW-hr
CO	3.589	g/hp-hr	4.813	g/kW-hr
NOx (Cell)	0.972	g/hp-hr	1.304	g/kW-hr
Particulate	0.323	g/hp-hr	0.433	g/kW-hr
CO2	718.1	g/hp-hr	962.93	g/kW-hr
BSFC	0.501	lb/hp-hr	0.305	kg/kW-hr
NMHC	0.170	g/hp-hr	0.228	g/kW-hr
CH4	0.162	g/hp-hr	0.217	g/kW-hr

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model:	2007 NAV 6.4L	Date: 12/17/2007 Time: 09:52	DIESEL 2D, EM-6541-F	
Engine Desc.:	6.4 L (390 CID) V8	Program HDT: 4.12-R	HCR: 1.781	FID Resp: 1.00
Engine Cycle:	Diesel	Cell: 7 Bag Cart: 7	H= 0.130 C= 0.870 O= 0.000 X= 0.000	
Engine S/N:	7046094			

Test Numbers
Cold: NPBASE C1 Hot: NPBASE H1

Brake-Specific Emission Results

BSHC (Cell)	0.203	g/hp-hr	0.272	g/kW-hr
CO	3.585	g/hp-hr	4.808	g/kW-hr
NOx (Cell)	1.000	g/hp-hr	1.341	g/kW-hr
Particulate	0.324	g/hp-hr	0.434	g/kW-hr
CO2	717.3	g/hp-hr	961.91	g/kW-hr
BSFC	0.501	lb/hp-hr	0.304	kg/kW-hr
NMHC	0.177	g/hp-hr	0.237	g/kW-hr
CH4	0.141	g/hp-hr	0.189	g/kW-hr
Work:	22.56	hp-hr	16.82	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASE C2
Date: 12/18/2007 Time:
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.31	in Hg	99.2 kPa
Engine Inlet Air			
Temperature:	71.0	°F	21.7 °C
Dew Point:	53.0	°F	11.7 °C
Abs. Humidity:	61.2	gr/lb	8.7 g/kg
Rel. Humidity:	53	%	
Dilution Air:			
Temperature:	80.0	°F	26.7 °C
Abs. Humidity	64.5	gr/lb	9.2 g/kg
Rel. Humidity:	41	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,236.0	63.32
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.18	0.03
Gas Meter 2:	2.70	0.08
Sample Rate:	1.52	0.04
20X20 Sample Rate:	37.60	1.06
47 mm Sample Rate:	33.88	0.96
Chemistry Sample Rate:	0.139	0.079
Total Flow Rate:	2,309.12	65.47

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		11.34	ppm	
HC Bckgrd	n/a		4.20	ppm	
CO Sample	n/a		52.06	ppm	(Dry)
CO Bckgrd	n/a		0.80	ppm	
NOx Sample	n/a		11.68	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.7297	%	(Dry)
CO2 Bckgrd	n/a		0.0470	%	
CH4 Sample	n/a	n/a	2.50	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.24	ppm	

Particulate Data

Filter Number:	4564.0-8 (pair)	
Weight Gain:	4.432	mg
Sample Multiplier:	1.517	

Correction Factors

NOx Humidity CF:	0.965
Dry-to-Wet CF, Sample:	0.979
Dry-to-Wet CF, Bckgrd:	0.985
Dilution Factor:	18.55

Test Cycle Data

Sample Time:	1,214.30	sec		
Work:	22.76	hp-hr	16.97	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr
Total Volume (Vmix):	46,729.9	scf	1,323.42	scm

Corrected Concentrations

HC	7.37	ppm	
CO	49.90	ppm	
NOx	11.24	ppm	
CO2	0.6698	%	
CH4	0.39	ppm	(1.00)

Mass Emissions

HC	5.594	grams		
CO	76.882	grams		
NOx	27.476	grams		
Particulate	6.722	grams		
CO2	16.217	kg		
CH4	0.340	grams		
Fuel	11.31	lb	5.13	kg

Brake-Specific Emission Results

BSHC (Cell)	0.246	g/hp-hr	0.330	g/kW-hr
CO	3.378	g/hp-hr	4.530	g/kW-hr
NOx (Cell)	1.207	g/hp-hr	1.619	g/kW-hr
Particulate	0.295	g/hp-hr	0.396	g/kW-hr
CO2	712.5	g/hp-hr	955.53	g/kW-hr
BSFC	0.497	lb/hp-hr	0.302	kg/kW-hr
NMHC	0.214	g/hp-hr	0.287	g/kW-hr
CH4	0.015	g/hp-hr	0.020	g/kW-hr

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASE H7
Date: 12/18/2007 Time: 09:35
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.32	in Hg	99.3 kPa
Engine Inlet Air			
Temperature:	74.0	°F	23.3 °C
Dew Point:	53.9	°F	12.2 °C
Abs. Humidity:	63.3	gr/lb	9.0 g/kg
Rel. Humidity:	49	%	
Dilution Air:			
Temperature:	80.0	°F	26.7 °C
Abs. Humidity	64.5	gr/lb	9.2 g/kg
Rel. Humidity:	41	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,263.1	64.09
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.18	0.03
Gas Meter 2:	2.69	0.08
Sample Rate:	1.51	0.04
20X20 Sample Rate:	37.60	1.06
47 mm Sample Rate:	33.91	0.96
Chemistry Sample Rate:	0.137	0.079
Total Flow Rate:	2,336.26	66.24

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		9.69	ppm	
HC Bckgrd	n/a		4.00	ppm	
CO Sample	n/a		52.21	ppm	(Dry)
CO Bckgrd	n/a		0.40	ppm	
NOx Sample	n/a		9.00	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.7116	%	(Dry)
CO2 Bckgrd	n/a		0.0450	%	
CH4 Sample	n/a	n/a	2.44	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.20	ppm	

Particulate Data

Filter Number:	4565.0-9 (pair)	
Weight Gain:	4.416	mg
Sample Multiplier:	1.550	

Correction Factors

NOx Humidity CF:	0.970
Dry-to-Wet CF, Sample:	0.979
Dry-to-Wet CF, Bckgrd:	0.985
Dilution Factor:	19.03

Corrected Concentrations

HC	5.90	ppm	
CO	50.44	ppm	
NOx	8.72	ppm	
CO2	0.6541	%	
CH4	0.36	ppm	(1.00)

Test Cycle Data

Sample Time:	1,214.30	sec		
Work:	22.76	hp-hr	16.97	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr
Total Volume (Vmix):	47,279.2	scf	1,338.98	scm

Mass Emissions

HC	4.533	grams
CO	78.623	grams
NOx	21.662	grams
Particulate	6.846	grams
CO2	16.022	kg
CH4	0.318	grams
Fuel	11.18 lb	5.07 kg

Brake-Specific Emission Results

BSHC (Cell)	0.199	g/hp-hr	0.267	g/kW-hr
CO	3.454	g/hp-hr	4.632	g/kW-hr
NOx (Cell)	0.952	g/hp-hr	1.276	g/kW-hr
Particulate	0.301	g/hp-hr	0.403	g/kW-hr
CO2	703.9	g/hp-hr	944.01	g/kW-hr
BSFC	0.491	lb/hp-hr	0.299	kg/kW-hr
NMHC	0.173	g/hp-hr	0.232	g/kW-hr
CH4	0.014	g/hp-hr	0.019	g/kW-hr

Analyzed: 02/01/2008 09:54

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Date: 12/18/2007 Time:
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Test Numbers
Cold: NPBASE C2 Hot: NPBASE H7

Brake-Specific Emission Results

BSHC (Cell)	0.206	g/hp-hr	0.276	g/kW-hr
CO	3.443	g/hp-hr	4.618	g/kW-hr
NOx (Cell)	0.988	g/hp-hr	1.325	g/kW-hr
Particulate	0.300	g/hp-hr	0.402	g/kW-hr
CO2	705.2	g/hp-hr	945.65	g/kW-hr
BSFC	0.492	lb/hp-hr	0.299	kg/kW-hr
NMHC	0.179	g/hp-hr	0.240	g/kW-hr
CH4	0.014	g/hp-hr	0.019	g/kW-hr
Work:	22.76	hp-hr	16.97	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASE C3
Date: 12/19/2007 Time: 09:22
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.25	in Hg	99.0 kPa
Engine Inlet Air			
Temperature:	71.0	°F	21.7 °C
Dew Point:	56.5	°F	13.6 °C
Abs. Humidity:	69.9	gr/lb	10.0 g/kg
Rel. Humidity:	60	%	
Dilution Air:			
Temperature:	77.0	°F	25.0 °C
Abs. Humidity	69.7	gr/lb	10.0 g/kg
Rel. Humidity:	49	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,256.9	63.92
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.18	0.03
Gas Meter 2:	2.66	0.08
Sample Rate:	1.48	0.04
20X20 Sample Rate:	51.34	1.45
47 mm Sample Rate:	34.12	0.97
Chemistry Sample Rate:	0.138	0.079
Total Flow Rate:	2,343.94	66.46

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		11.22	ppm	
HC Bckgrd	n/a		4.40	ppm	
CO Sample	n/a		50.35	ppm	(Dry)
CO Bckgrd	n/a		0.50	ppm	
NOx Sample	n/a		11.43	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.7214	%	(Dry)
CO2 Bckgrd	n/a		0.0460	%	
CH4 Sample	n/a	n/a	26.21	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	24.23	ppm	

Particulate Data

Filter Number:	4678.0-15 (pair)	
Weight Gain:	4.293	mg
Sample Multiplier:	1.580	

Correction Factors

NOx Humidity CF:	0.987
Dry-to-Wet CF, Sample:	0.978
Dry-to-Wet CF, Bckgrd:	0.984
Dilution Factor:	18.77

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.81	hp-hr	17.01	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr
Total Volume (Vmix):	47,430.7	scf	1,343.27	scm

Corrected Concentrations

HC	7.05	ppm	
CO	48.40	ppm	
NOx	11.08	ppm	
CO2	0.6618	%	
CH4	3.27	ppm	(1.00)

Mass Emissions

HC	5.437	grams		
CO	75.686	grams		
NOx	28.092	grams		
Particulate	6.782	grams		
CO2	16.264	kg		
CH4	2.926	grams		
Fuel	11.35	lb	5.15	kg

Brake-Specific Emission Results

BSHC (Cell)	0.238	g/hp-hr	0.320	g/kW-hr
CO	3.318	g/hp-hr	4.450	g/kW-hr
NOx (Cell)	1.232	g/hp-hr	1.652	g/kW-hr
Particulate	0.297	g/hp-hr	0.399	g/kW-hr
CO2	713.0	g/hp-hr	956.18	g/kW-hr
BSFC	0.497	lb/hp-hr	0.303	kg/kW-hr
NMHC	0.207	g/hp-hr	0.278	g/kW-hr
CH4	0.128	g/hp-hr	0.172	g/kW-hr

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Test No.: NPBASE H13
Date: 12/19/2007 Time: 10:02
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6541-F
HCR: 1.781 FID Resp: 1.00
H= 0.130 C= 0.870 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.24	in Hg	99.0 kPa
Engine Inlet Air			
Temperature:	72.0	°F	22.2 °C
Dew Point:	56.6	°F	13.7 °C
Abs. Humidity:	70.1	gr/lb	10.0 g/kg
Rel. Humidity:	58	%	
Dilution Air:			
Temperature:	78.0	°F	25.6 °C
Abs. Humidity	73.0	gr/lb	10.4 g/kg
Rel. Humidity:	50	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,267.6	64.22
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.17	0.03
Gas Meter 2:	2.63	0.07
Sample Rate:	1.46	0.04
20X20 Sample Rate:	38.35	1.09
47 mm Sample Rate:	34.03	0.96
Chemistry Sample Rate:	0.136	0.078
Total Flow Rate:	2,341.60	66.39

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		12.06	ppm	
HC Bckgrd	n/a		6.60	ppm	
CO Sample	n/a		51.63	ppm	(Dry)
CO Bckgrd	n/a		0.20	ppm	
NOx Sample	n/a		9.13	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.7151	%	(Dry)
CO2 Bckgrd	n/a		0.0490	%	
CH4 Sample	n/a	n/a	2.86	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.69	ppm	

Particulate Data

Filter Number:	4679.0-16 (pair)	
Weight Gain:	4.332	mg
Sample Multiplier:	1.601	

Correction Factors

NOx Humidity CF:	0.987
Dry-to-Wet CF, Sample:	0.977
Dry-to-Wet CF, Bckgrd:	0.984
Dilution Factor:	18.93

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.68	hp-hr	16.91	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr
Total Volume (Vmix):	47,383.4	scf	1,341.93	scm

Corrected Concentrations

HC	5.81	ppm	
CO	49.92	ppm	
NOx	8.73	ppm	
CO2	0.6523	%	
CH4	0.32	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.197	g/hp-hr	0.264	g/kW-hr
CO	3.438	g/hp-hr	4.611	g/kW-hr
NOx (Cell)	0.976	g/hp-hr	1.308	g/kW-hr
Particulate	0.306	g/hp-hr	0.410	g/kW-hr
CO2	706.1	g/hp-hr	946.91	g/kW-hr
BSFC	0.493	lb/hp-hr	0.300	kg/kW-hr
NMHC	0.172	g/hp-hr	0.230	g/kW-hr
CH4	0.013	g/hp-hr	0.017	g/kW-hr

Mass Emissions

HC		4.472	grams	
CO		77.982	grams	
NOx		22.128	grams	
Particulate		6.934	grams	
CO2		16.015	kg	
CH4		0.284	grams	
Fuel	11.17 lb		5.07 kg	

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N:

Date: 12/19/2007 Time: 09:22 DIESEL 2D, EM-6541-F
Program HDT: 4.12-R HCR: 1.781 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.130 C= 0.870 O= 0.000 X= 0.000

Test Numbers
Cold: NPBASE C3 Hot: NPBASE H13

Brake-Specific Emission Results

BSHC (Cell)	0.203	g/hp-hr	0.272	g/kW-hr
CO	3.421	g/hp-hr	4.588	g/kW-hr
NOx (Cell)	1.012	g/hp-hr	1.358	g/kW-hr
Particulate	0.305	g/hp-hr	0.408	g/kW-hr
CO2	707.1	g/hp-hr	948.24	g/kW-hr
BSFC	0.493	lb/hp-hr	0.300	kg/kW-hr
NMHC	0.177	g/hp-hr	0.237	g/kW-hr
CH4	0.029	g/hp-hr	0.039	g/kW-hr
Work:	22.70	hp-hr	16.93	kW-hr
Reference Work:	22.60	hp-hr	16.85	kW-hr

Analyzed: 02/01/2008 09:53

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADDCAT-C1
Date: 01/29/2008 Time: 08:25
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	28.93	in Hg	98.0 kPa
Engine Inlet Air			
Temperature:	74.0	°F	23.3 °C
Dew Point:	57.2	°F	14.0 °C
Abs. Humidity:	72.5	gr/lb	10.4 g/kg
Rel. Humidity:	56	%	
Dilution Air:			
Temperature:	77.0	°F	25.0 °C
Abs. Humidity	86.1	gr/lb	12.3 g/kg
Rel. Humidity:	60	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,267.7	64.22
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.53	0.07
Sample Rate:	1.32	0.04
20X20 Sample Rate:	38.94	1.10
Chemistry Sample Rate:	0.135	0.077
Total Flow Rate:	2,308.12	65.44

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		4.41	ppm	
HC Bckgrd	n/a		3.70	ppm	
CO Sample	n/a		11.62	ppm	(Dry)
CO Bckgrd	n/a		0.60	ppm	
NOx Sample	n/a		8.60	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.6829	%	(Dry)
CO2 Bckgrd	n/a		0.0470	%	
CH4 Sample	n/a	n/a	2.77	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.14	ppm	

Particulate Data

Filter Number:	5558.0-68 (pair)	
Weight Gain:	0.082	mg
Sample Multiplier:	1.749	

Correction Factors

NOx Humidity CF:	0.993
Dry-to-Wet CF, Sample:	0.973
Dry-to-Wet CF, Bckgrd:	0.981
Dilution Factor:	18.70

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	23.01	hp-hr	17.16	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr
Total Volume (Vmix):	46,706.0	scf	1,322.74	scm

Corrected Concentrations

HC	0.91	ppm	
CO	10.68	ppm	
NOx	8.18	ppm	
CO2	0.6202	%	
CH4	0.75	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.031	g/hp-hr	0.041	g/kW-hr
CO	0.714	g/hp-hr	0.958	g/kW-hr
NOx (Cell)	0.894	g/hp-hr	1.198	g/kW-hr
Particulate	0.006	g/hp-hr	0.008	g/kW-hr
CO2	652.3	g/hp-hr	874.69	g/kW-hr
BSFC	0.463	lb/hp-hr	0.282	kg/kW-hr
NMHC	0.026	g/hp-hr	0.035	g/kW-hr
CH4	0.029	g/hp-hr	0.038	g/kW-hr

Mass Emissions

HC		0.706	grams	
CO		16.439	grams	
NOx		20.561	grams	
Particulate		0.143	grams	
CO2		15.008	kg	
CH4		0.659	grams	
Fuel	10.66 lb		4.83	kg

Analyzed: 02/20/2008 11:05

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADDCAT-H1
Date: 01/29/2008 Time: 09:05
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	28.96	in Hg	98.1 kPa
Engine Inlet Air			
Temperature:	75.0	°F	23.9 °C
Dew Point:	57.6	°F	14.2 °C
Abs. Humidity:	73.5	gr/lb	10.5 g/kg
Rel. Humidity:	55	%	
Dilution Air:			
Temperature:	78.0	°F	25.6 °C
Abs. Humidity	79.1	gr/lb	11.3 g/kg
Rel. Humidity:	53	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,274.7	64.42
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.54	0.07
Sample Rate:	1.34	0.04
20X20 Sample Rate:	37.95	1.07
Chemistry Sample Rate:	0.135	0.077
Total Flow Rate:	2,314.17	65.61

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		4.54	ppm	
HC Bckgrd	n/a		4.20	ppm	
CO Sample	n/a		9.58	ppm	(Dry)
CO Bckgrd	n/a		0.00	ppm	
NOx Sample	n/a		7.32	ppm	(Dry)
NOx Bckgrd	n/a		0.30	ppm	
CO2 Sample	n/a		0.6674	%	(Dry)
CO2 Bckgrd	n/a		0.0460	%	
CH4 Sample	n/a	n/a	2.81	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.05	ppm	

Particulate Data

Filter Number:	5559.0 (pair)	
Weight Gain:	0.066	mg
Sample Multiplier:	1.729	

Correction Factors

NOx Humidity CF:	0.996
Dry-to-Wet CF, Sample:	0.975
Dry-to-Wet CF, Bckgrd:	0.982
Dilution Factor:	19.14

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.66	hp-hr	16.90	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr
Total Volume (Vmix):	46,828.3	scf	1,326.20	scm

Corrected Concentrations

HC	0.56	ppm	
CO	9.28	ppm	
NOx	6.85	ppm	
CO2	0.6072	%	
CH4	0.86	ppm	(1.00)

Brake-Specific Emission Results

BSHC	(Cell)	0.019 g/hp-hr	0.026	g/kW-hr
CO		0.633 g/hp-hr	0.848	g/kW-hr
NOx	(Cell)	0.764 g/hp-hr	1.025	g/kW-hr
Particulate		0.005 g/hp-hr	0.007	g/kW-hr
CO2		650.1 g/hp-hr	871.79	g/kW-hr
BSFC		0.462 lb/hp-hr	0.281	kg/kW-hr
NMHC		0.016 g/hp-hr	0.022	g/kW-hr
CH4		0.034 g/hp-hr	0.045	g/kW-hr

Mass Emissions

HC		0.436	grams	
CO		14.333	grams	
NOx		17.313	grams	
Particulate		0.114	grams	
CO2		14.731	kg	
CH4		0.759	grams	
Fuel	10.46 lb		4.74	kg

Analyzed: 02/20/2008 11:06

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/29/2008 Time: 08:25 DIESEL 2D, EM-6514-F
Program HDT: 4.12-R HCR: 2.119 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.151 C= 0.849 O= 0.000 X= 0.000

Test Numbers
Cold: NPADDCAT-C1 Hot: NPADDCAT-H1

Brake-Specific Emission Results

BSHC (Cell)	0.021	g/hp-hr	0.028	g/kW-hr
CO	0.644	g/hp-hr	0.864	g/kW-hr
NOx (Cell)	0.783	g/hp-hr	1.050	g/kW-hr
Particulate	0.005	g/hp-hr	0.007	g/kW-hr
CO2	650.4	g/hp-hr	872.21	g/kW-hr
BSFC	0.462	lb/hp-hr	0.281	kg/kW-hr
NMHC	0.018	g/hp-hr	0.024	g/kW-hr
CH4	0.033	g/hp-hr	0.044	g/kW-hr
Work:	22.71	hp-hr	16.93	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr

Analyzed: 02/20/2008 11:05

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADDCAT-C2
Date: 01/30/2008 Time: 09:13
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.25	in Hg	99.1 kPa
Engine Inlet Air			
Temperature:	72.0	°F	22.2 °C
Dew Point:	48.7	°F	9.3 °C
Abs. Humidity:	52.2	gr/lb	7.5 g/kg
Rel. Humidity:	44	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	41.2	gr/lb	5.9 g/kg
Rel. Humidity:	31	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,284.6	64.70
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.22	0.03
Gas Meter 2:	2.70	0.08
Sample Rate:	1.48	0.04
20X20 Sample Rate:	41.26	1.17
Chemistry Sample Rate:	0.137	0.079
Total Flow Rate:	2,327.50	65.99

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		4.07	ppm	
HC Bckgrd	n/a		3.50	ppm	
CO Sample	n/a		9.81	ppm	(Dry)
CO Bckgrd	n/a		0.50	ppm	
NOx Sample	n/a		9.95	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.6678	%	(Dry)
CO2 Bckgrd	n/a		0.0470	%	
CH4 Sample	n/a	n/a	2.64	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.29	ppm	

Particulate Data

Filter Number:	5569.0-75 (pair)	
Weight Gain:	0.088	mg
Sample Multiplier:	1.575	

Correction Factors

NOx Humidity CF:	0.944
Dry-to-Wet CF, Sample:	0.984
Dry-to-Wet CF, Bckgrd:	0.991
Dilution Factor:	19.13

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	23.09	hp-hr	17.22	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr
Total Volume (Vmix):	47,098.1	scf	1,333.85	scm

Corrected Concentrations

HC	0.75	ppm	
CO	9.11	ppm	
NOx	9.60	ppm	
CO2	0.6123	%	
CH4	0.47	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.026	g/hp-hr	0.034	g/kW-hr
CO	0.612	g/hp-hr	0.821	g/kW-hr
NOx (Cell)	1.001	g/hp-hr	1.342	g/kW-hr
Particulate	0.006	g/hp-hr	0.008	g/kW-hr
CO2	647.1	g/hp-hr	867.71	g/kW-hr
BSFC	0.459	lb/hp-hr	0.279	kg/kW-hr
NMHC	0.022	g/hp-hr	0.029	g/kW-hr
CH4	0.018	g/hp-hr	0.024	g/kW-hr

Mass Emissions

HC		0.591	grams	
CO		14.142	grams	
NOx		23.110	grams	
Particulate		0.139	grams	
CO2		14.940	kg	
CH4		0.419	grams	
Fuel	10.61 lb		4.81 kg	

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADDCAT-H7
Date: 01/30/2008 Time: 09:54
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.25	in Hg	99.0 kPa
Engine Inlet Air			
Temperature:	73.0	°F	22.8 °C
Dew Point:	50.4	°F	10.2 °C
Abs. Humidity:	55.7	gr/lb	8.0 g/kg
Rel. Humidity:	45	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	41.2	gr/lb	5.9 g/kg
Rel. Humidity:	31	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,283.8	64.68
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.22	0.03
Gas Meter 2:	2.70	0.08
Sample Rate:	1.49	0.04
20X20 Sample Rate:	40.72	1.15
Chemistry Sample Rate:	0.134	0.077
Total Flow Rate:	2,326.10	65.95

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		3.66	ppm	
HC Bckgrd	n/a		3.10	ppm	
CO Sample	n/a		7.53	ppm	(Dry)
CO Bckgrd	n/a		0.40	ppm	
NOx Sample	n/a		7.84	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.6567	%	(Dry)
CO2 Bckgrd	n/a		0.0460	%	
CH4 Sample	n/a	n/a	2.64	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.23	ppm	

Particulate Data

Filter Number:	5570.0-76 (pair)	
Weight Gain:	0.120	mg
Sample Multiplier:	1.566	

Correction Factors

NOx Humidity CF:	0.952
Dry-to-Wet CF, Sample:	0.984
Dry-to-Wet CF, Bckgrd:	0.991
Dilution Factor:	19.46

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.83	hp-hr	17.02	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr
Total Volume (Vmix):	47,069.7	scf	1,333.04	scm

Corrected Concentrations

HC	0.72	ppm	
CO	6.98	ppm	
NOx	7.52	ppm	
CO2	0.6023	%	
CH4	0.53	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.025	g/hp-hr	0.033	g/kW-hr
CO	0.474	g/hp-hr	0.636	g/kW-hr
NOx (Cell)	0.800	g/hp-hr	1.073	g/kW-hr
Particulate	0.008	g/hp-hr	0.011	g/kW-hr
CO2	643.4	g/hp-hr	862.83	g/kW-hr
BSFC	0.457	lb/hp-hr	0.278	kg/kW-hr
NMHC	0.021	g/hp-hr	0.028	g/kW-hr
CH4	0.021	g/hp-hr	0.028	g/kW-hr

Mass Emissions

HC		0.564	grams	
CO		10.827	grams	
NOx		18.259	grams	
Particulate		0.188	grams	
CO2		14.689	kg	
CH4		0.469	grams	
Fuel	10.43 lb		4.73 kg	

Analyzed: 02/20/2008 11:07

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/30/2008 Time: 09:13 DIESEL 2D, EM-6514-F
Program HDT: 4.12-R HCR: 2.119 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.151 C= 0.849 O= 0.000 X= 0.000

Test Numbers
Cold: NPADDCAT-C2 Hot: NPADDCAT-H7

Brake-Specific Emission Results

BSHC (Cell)	0.025	g/hp-hr	0.033	g/kW-hr
CO	0.494	g/hp-hr	0.663	g/kW-hr
NOx (Cell)	0.829	g/hp-hr	1.111	g/kW-hr
Particulate	0.008	g/hp-hr	0.011	g/kW-hr
CO2	643.9	g/hp-hr	863.53	g/kW-hr
BSFC	0.457	lb/hp-hr	0.278	kg/kW-hr
NMHC	0.021	g/hp-hr	0.028	g/kW-hr
CH4	0.020	g/hp-hr	0.027	g/kW-hr
Work:	22.87	hp-hr	17.05	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr

Analyzed: 02/20/2008 11:05

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADDCAT-C3
Date: 01/31/2008 Time: 09:55
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.16	in Hg	98.7 kPa
Engine Inlet Air			
Temperature:	73.0	°F	22.8 °C
Dew Point:	53.4	°F	11.9 °C
Abs. Humidity:	62.5	gr/lb	8.9 g/kg
Rel. Humidity:	50	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	33.2	gr/lb	4.7 g/kg
Rel. Humidity:	25	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,247.5	63.65
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.69	0.08
Sample Rate:	1.48	0.04
20X20 Sample Rate:	36.01	1.02
Chemistry Sample Rate:	0.135	0.077
Total Flow Rate:	2,285.09	64.79

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		3.04	ppm	
HC Bckgrd	n/a		2.50	ppm	
CO Sample	n/a		9.43	ppm	(Dry)
CO Bckgrd	n/a		0.50	ppm	
NOx Sample	n/a		9.15	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.6718	%	(Dry)
CO2 Bckgrd	n/a		0.0420	%	
CH4 Sample	n/a	n/a	2.47	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.00	ppm	

Particulate Data

Filter Number:	5637.0-82 (pair)	
Weight Gain:	0.092	mg
Sample Multiplier:	1.548	

Correction Factors

NOx Humidity CF:	0.968
Dry-to-Wet CF, Sample:	0.985
Dry-to-Wet CF, Bckgrd:	0.992
Dilution Factor:	19.02

Test Cycle Data

Sample Time:	1,214.50	sec		
Work:	22.91	hp-hr	17.08	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr
Total Volume (Vmix):	46,251.4	scf	1,309.87	scm

Corrected Concentrations

HC	0.67	ppm	
CO	8.75	ppm	
NOx	8.92	ppm	
CO2	0.6221	%	
CH4	0.58	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.023	g/hp-hr	0.030	g/kW-hr
CO	0.583	g/hp-hr	0.781	g/kW-hr
NOx (Cell)	0.945	g/hp-hr	1.267	g/kW-hr
Particulate	0.006	g/hp-hr	0.008	g/kW-hr
CO2	650.7	g/hp-hr	872.65	g/kW-hr
BSFC	0.462	lb/hp-hr	0.281	kg/kW-hr
NMHC	0.019	g/hp-hr	0.026	g/kW-hr
CH4	0.022	g/hp-hr	0.029	g/kW-hr

Mass Emissions

HC		0.517	grams	
CO		13.348	grams	
NOx		21.643	grams	
Particulate		0.142	grams	
CO2		14.908	kg	
CH4		0.502	grams	
Fuel	10.58 lb		4.80 kg	

Analyzed: 02/20/2008 11:06

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADDCAT-H13
Date: 01/31/2008 Time: 10:35
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.17	in Hg	98.8 kPa
Engine Inlet Air			
Temperature:	74.0	°F	23.3 °C
Dew Point:	53.8	°F	12.1 °C
Abs. Humidity:	63.4	gr/lb	9.1 g/kg
Rel. Humidity:	49	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	33.1	gr/lb	4.7 g/kg
Rel. Humidity:	25	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,246.0	63.61
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.69	0.08
Sample Rate:	1.48	0.04
20X20 Sample Rate:	39.52	1.12
Chemistry Sample Rate:	0.135	0.078
Total Flow Rate:	2,287.18	64.85

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		3.44	ppm	
HC Bckgrd	n/a		2.80	ppm	
CO Sample	n/a		8.50	ppm	(Dry)
CO Bckgrd	n/a		0.60	ppm	
NOx Sample	n/a		7.90	ppm	(Dry)
NOx Bckgrd	n/a		0.20	ppm	
CO2 Sample	n/a		0.6613	%	(Dry)
CO2 Bckgrd	n/a		0.0420	%	
CH4 Sample	n/a	n/a	2.49	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	1.99	ppm	

Particulate Data

Filter Number:	5698.0-83 (pair)	
Weight Gain:	0.089	mg
Sample Multiplier:	1.548	

Correction Factors

NOx Humidity CF:	0.971
Dry-to-Wet CF, Sample:	0.985
Dry-to-Wet CF, Bckgrd:	0.992
Dilution Factor:	19.32

Test Cycle Data

Sample Time:	1,214.50	sec		
Work:	22.79	hp-hr	16.99	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr
Total Volume (Vmix):	46,293.6	scf	1,311.06	scm

Corrected Concentrations

HC	0.78	ppm	
CO	7.75	ppm	
NOx	7.60	ppm	
CO2	0.6118	%	
CH4	0.60	ppm	(1.00)

Mass Emissions

HC	0.605	grams		
CO	11.830	grams		
NOx	18.486	grams		
Particulate	0.138	grams		
CO2	14.675	kg		
CH4	0.527	grams		
Fuel	10.42 lb		4.72 kg	

Brake-Specific Emission Results

BSHC (Cell)	0.027	g/hp-hr	0.036	g/kW-hr
CO	0.519	g/hp-hr	0.696	g/kW-hr
NOx (Cell)	0.811	g/hp-hr	1.088	g/kW-hr
Particulate	0.006	g/hp-hr	0.008	g/kW-hr
CO2	643.9	g/hp-hr	863.51	g/kW-hr
BSFC	0.457	lb/hp-hr	0.278	kg/kW-hr
NMHC	0.023	g/hp-hr	0.030	g/kW-hr
CH4	0.023	g/hp-hr	0.031	g/kW-hr

Analyzed: 02/20/2008 11:07

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/31/2008 Time: 09:55 DIESEL 2D, EM-6514-F
Program HDT: 4.12-R HCR: 2.119 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.151 C= 0.849 O= 0.000 X= 0.000

Test Numbers
Cold: NPADDCAT-C3 Hot: NPADDCAT-H13

Brake-Specific Emission Results

BSHC (Cell)	0.026	g/hp-hr	0.035	g/kW-hr
CO	0.528	g/hp-hr	0.708	g/kW-hr
NOx (Cell)	0.830	g/hp-hr	1.113	g/kW-hr
Particulate	0.006	g/hp-hr	0.008	g/kW-hr
CO2	644.9	g/hp-hr	864.82	g/kW-hr
BSFC	0.458	lb/hp-hr	0.278	kg/kW-hr
NMHC	0.022	g/hp-hr	0.030	g/kW-hr
CH4	0.023	g/hp-hr	0.031	g/kW-hr
Work:	22.81	hp-hr	17.01	kW-hr
Reference Work:	22.55	hp-hr	16.82	kW-hr

Analyzed: 02/20/2008 11:06

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADD-C1
Date: 01/23/2008 Time: 09:35
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.30	in Hg	99.2 kPa
Engine Inlet Air			
Temperature:	74.0	°F	23.3 °C
Dew Point:	48.5	°F	9.2 °C
Abs. Humidity:	51.7	gr/lb	7.4 g/kg
Rel. Humidity:	40	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	54.1	gr/lb	7.7 g/kg
Rel. Humidity:	41	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,297.5	65.07
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.60	0.07
Sample Rate:	1.40	0.04
20X20 Sample Rate:	39.38	1.12
Chemistry Sample Rate:	0.139	0.080
Total Flow Rate:	2,338.46	66.30

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		6.86	ppm	
HC Bckgrd	n/a		4.20	ppm	
CO Sample	n/a		41.14	ppm	(Dry)
CO Bckgrd	n/a		1.30	ppm	
NOx Sample	n/a		9.99	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.6768	%	(Dry)
CO2 Bckgrd	n/a		0.0450	%	
CH4 Sample	n/a	n/a	2.73	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.50	ppm	

Particulate Data

Filter Number:	5443.0-44 (pair)	
Weight Gain:	4.664	mg
Sample Multiplier:	1.676	

Correction Factors

NOx Humidity CF:	0.943
Dry-to-Wet CF, Sample:	0.981
Dry-to-Wet CF, Bckgrd:	0.988
Dilution Factor:	18.78

Corrected Concentrations

HC	2.88	ppm	
CO	38.81	ppm	
NOx	9.70	ppm	
CO2	0.6210	%	
CH4	0.37	ppm	(1.00)

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	23.17	hp-hr	17.28	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr
Total Volume (Vmix):	47,319.8	scf	1,340.12	scm

Mass Emissions

HC	2.272	grams
CO	60.546	grams
NOx	23.443	grams
Particulate	7.815	grams
CO2	15.225	kg
CH4	0.327	grams
Fuel	10.87 lb	4.93 kg

Brake-Specific Emission Results

BSHC (Cell)	0.098	g/hp-hr	0.132	g/kW-hr
CO	2.613	g/hp-hr	3.504	g/kW-hr
NOx (Cell)	1.012	g/hp-hr	1.357	g/kW-hr
Particulate	0.337	g/hp-hr	0.452	g/kW-hr
CO2	657.1	g/hp-hr	881.21	g/kW-hr
BSFC	0.469	lb/hp-hr	0.285	kg/kW-hr
NMHC	0.083	g/hp-hr	0.112	g/kW-hr
CH4	0.014	g/hp-hr	0.019	g/kW-hr

Analyzed: 02/20/2008 11:02

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADD-H1
Date: 01/23/2008 Time: 13:37
Program HDT: 4.12-R
Cell: 7 Bag Cart: 1

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.22	in Hg	98.9 kPa
Engine Inlet Air			
Temperature:	78.0	°F	25.6 °C
Dew Point:	52.3	°F	11.3 °C
Abs. Humidity:	59.8	gr/lb	8.5 g/kg
Rel. Humidity:	41	%	
Dilution Air:			
Temperature:	74.0	°F	23.3 °C
Abs. Humidity	51.5	gr/lb	7.4 g/kg
Rel. Humidity:	40	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,290.7	64.87
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.57	0.07
Sample Rate:	1.36	0.04
20X20 Sample Rate:	37.06	1.05
Chemistry Sample Rate:	0.139	0.080
Total Flow Rate:	2,329.22	66.04

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		6.68	ppm	
HC Bckgrd	3.7	2	3.70	ppm	
CO Sample	n/a		39.14	ppm	(Dry)
CO Bckgrd	0.1	2	0.09	ppm	
NOx Sample	n/a		8.09	ppm	(Dry)
NOx Bckgrd	0.4	1	0.10	ppm	
CO2 Sample	n/a		0.6633	%	(Dry)
CO2 Bckgrd	4.7	1	0.0450	ppm	
CH4 Sample	n/a	n/a	2.85	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.46	ppm	

Particulate Data

Filter Number:	5445.0-46 (pair)	
Weight Gain:	4.095	mg
Sample Multiplier:	1.712	

Correction Factors

NOx Humidity CF:	0.962
Dry-to-Wet CF, Sample:	0.981
Dry-to-Wet CF, Bckgrd:	0.988
Dilution Factor:	19.17

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.85	hp-hr	17.04	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr
Total Volume (Vmix):	47,132.8	scf	1,334.83	scm

Corrected Concentrations

HC	3.17	ppm	
CO	38.01	ppm	
NOx	7.84	ppm	
CO2	0.6082	%	
CH4	0.52	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.109	g/hp-hr	0.146	g/kW-hr
CO	2.585	g/hp-hr	3.467	g/kW-hr
NOx (Cell)	0.843	g/hp-hr	1.131	g/kW-hr
Particulate	0.307	g/hp-hr	0.412	g/kW-hr
CO2	650.0	g/hp-hr	871.67	g/kW-hr
BSFC	0.464	lb/hp-hr	0.282	kg/kW-hr
NMHC	0.093	g/hp-hr	0.124	g/kW-hr
CH4	0.020	g/hp-hr	0.027	g/kW-hr

Mass Emissions

HC		2.490	grams	
CO		59.070	grams	
NOx		19.264	grams	
Particulate		7.012	grams	
CO2		14.853	kg	
CH4		0.461	grams	
Fuel	10.60 lb		4.81 kg	

Analyzed: 02/20/2008 11:04

Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/23/2008 Time: 09:35
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Test Numbers
Cold: NPADD-C1 Hot: NPADD-H1

Brake-Specific Emission Results

BSHC (Cell)	0.107	g/hp-hr	0.144	g/kW-hr
CO	2.589	g/hp-hr	3.472	g/kW-hr
NOx (Cell)	0.867	g/hp-hr	1.163	g/kW-hr
Particulate	0.311	g/hp-hr	0.417	g/kW-hr
CO2	651.0	g/hp-hr	873.05	g/kW-hr
BSFC	0.465	lb/hp-hr	0.283	kg/kW-hr
NMHC	0.091	g/hp-hr	0.122	g/kW-hr
CH4	0.019	g/hp-hr	0.026	g/kW-hr
Work:	22.90	hp-hr	17.07	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr

Analyzed: 02/20/2008 11:02

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADD-C2
Date: 01/24/2008 Time: 09:10
Program HDT: 4.12-R
Cell: 7 Bag Cart: 1

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.40	in Hg	99.5 kPa
Engine Inlet Air			
Temperature:	69.0	°F	20.6 °C
Dew Point:	46.6	°F	8.1 °C
Abs. Humidity:	48.0	gr/lb	6.9 g/kg
Rel. Humidity:	45	%	
Dilution Air:			
Temperature:	74.0	°F	23.3 °C
Abs. Humidity	38.3	gr/lb	5.5 g/kg
Rel. Humidity:	30	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,276.7	64.48
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.22	0.03
Gas Meter 2:	2.70	0.08
Sample Rate:	1.48	0.04
20X20 Sample Rate:	43.14	1.22
Chemistry Sample Rate:	0.137	0.079
Total Flow Rate:	2,321.42	65.82

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		6.01	ppm	
HC Bckgrd	3.3	2	3.30	ppm	
CO Sample	n/a		37.45	ppm	(Dry)
CO Bckgrd	0.1	2	0.09	ppm	
NOx Sample	n/a		9.87	ppm	(Dry)
NOx Bckgrd	0.1	1	0.03	ppm	
CO2 Sample	n/a		0.6566	%	(Dry)
CO2 Bckgrd	4.5	1	0.0431	ppm	
CH4 Sample	n/a	n/a	2.59	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.30	ppm	

Particulate Data

Filter Number:	5521.0-52 (pair)	
Weight Gain:	3.924	mg
Sample Multiplier:	1.564	

Correction Factors

NOx Humidity CF:	0.934
Dry-to-Wet CF, Sample:	0.984
Dry-to-Wet CF, Bckgrd:	0.991
Dilution Factor:	19.37

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.99	hp-hr	17.14	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr
Total Volume (Vmix):	46,974.9	scf	1,330.36	scm

Corrected Concentrations

HC	2.88	ppm	
CO	36.49	ppm	
NOx	9.69	ppm	
CO2	0.6054	%	
CH4	0.42	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.098	g/hp-hr	0.131	g/kW-hr
CO	2.458	g/hp-hr	3.297	g/kW-hr
NOx (Cell)	1.002	g/hp-hr	1.343	g/kW-hr
Particulate	0.267	g/hp-hr	0.358	g/kW-hr
CO2	640.9	g/hp-hr	859.48	g/kW-hr
BSFC	0.457	lb/hp-hr	0.278	kg/kW-hr
NMHC	0.083	g/hp-hr	0.112	g/kW-hr
CH4	0.016	g/hp-hr	0.022	g/kW-hr

Mass Emissions

HC		2.253	grams	
CO		56.520	grams	
NOx		23.025	grams	
Particulate		6.137	grams	
CO2		14.735	kg	
CH4		0.370	grams	
Fuel	10.51 lb		4.77 kg	

Analyzed: 02/20/2008 11:03

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADD-H7
Date: 01/24/2008 Time: 09:50
Program HDT: 4.12-R
Cell: 7 Bag Cart: 1

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.43	in Hg	99.7 kPa
Engine Inlet Air			
Temperature:	74.0	°F	23.3 °C
Dew Point:	47.8	°F	8.8 °C
Abs. Humidity:	50.1	gr/lb	7.2 g/kg
Rel. Humidity:	39	%	
Dilution Air:			
Temperature:	73.0	°F	22.8 °C
Abs. Humidity	39.9	gr/lb	5.7 g/kg
Rel. Humidity:	33	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,290.8	64.88
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.22	0.03
Gas Meter 2:	2.61	0.07
Sample Rate:	1.40	0.04
20X20 Sample Rate:	39.42	1.12
Chemistry Sample Rate:	0.139	0.079
Total Flow Rate:	2,331.72	66.11

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		6.00	ppm	
HC Bckgrd	3.3	2	3.30	ppm	
CO Sample	n/a		37.33	ppm	(Dry)
CO Bckgrd	0.1	2	0.09	ppm	
NOx Sample	n/a		8.06	ppm	(Dry)
NOx Bckgrd	0.2	1	0.05	ppm	
CO2 Sample	n/a		0.6470	%	(Dry)
CO2 Bckgrd	4.5	1	0.0431	ppm	
CH4 Sample	n/a	n/a	2.69	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.27	ppm	

Particulate Data

Filter Number:	5522.0-53 (pair)	
Weight Gain:	3.784	mg
Sample Multiplier:	1.671	

Correction Factors

NOx Humidity CF:	0.939
Dry-to-Wet CF, Sample:	0.984
Dry-to-Wet CF, Bckgrd:	0.991
Dilution Factor:	19.66

Test Cycle Data

Sample Time:	1,214.50	sec		
Work:	22.67	hp-hr	16.91	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr
Total Volume (Vmix):	47,195.2	scf	1,336.59	scm

Corrected Concentrations

HC	2.87	ppm	
CO	36.36	ppm	
NOx	7.88	ppm	
CO2	0.5958	%	
CH4	0.53	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.099	g/hp-hr	0.133	g/kW-hr
CO	2.495	g/hp-hr	3.346	g/kW-hr
NOx (Cell)	0.835	g/hp-hr	1.120	g/kW-hr
Particulate	0.279	g/hp-hr	0.374	g/kW-hr
CO2	642.6	g/hp-hr	861.75	g/kW-hr
BSFC	0.459	lb/hp-hr	0.279	kg/kW-hr
NMHC	0.084	g/hp-hr	0.113	g/kW-hr
CH4	0.021	g/hp-hr	0.028	g/kW-hr

Mass Emissions

HC		2.254	grams	
CO		56.571	grams	
NOx		18.929	grams	
Particulate		6.323	grams	
CO2		14.568	kg	
CH4		0.474	grams	
Fuel	10.40 lb		4.71 kg	

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Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/24/2008 Time: 09:10 DIESEL 2D, EM-6514-F
Program HDT: 4.12-R HCR: 2.119 FID Resp: 1.00
Cell: 7 Bag Cart: 1 H= 0.151 C= 0.849 O= 0.000 X= 0.000

Test Numbers
Cold: NPADD-C2 Hot: NPADD-H7

Brake-Specific Emission Results

BSHC (Cell)	0.099	g/hp-hr	0.133	g/kW-hr
CO	2.490	g/hp-hr	3.339	g/kW-hr
NOx (Cell)	0.859	g/hp-hr	1.152	g/kW-hr
Particulate	0.277	g/hp-hr	0.372	g/kW-hr
CO2	642.4	g/hp-hr	861.42	g/kW-hr
BSFC	0.458	lb/hp-hr	0.279	kg/kW-hr
NMHC	0.084	g/hp-hr	0.113	g/kW-hr
CH4	0.020	g/hp-hr	0.027	g/kW-hr
Work:	22.72	hp-hr	16.94	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr

Analyzed: 02/20/2008 11:03

Southwest Research Institute - Department of Emissions Research
EPA Cold Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADD-C3
Date: 01/25/2008 Time: 11:29
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.44	in Hg	99.7 kPa
Engine Inlet Air			
Temperature:	51.0	°F	10.6 °C
Dew Point:	47.3	°F	8.5 °C
Abs. Humidity:	49.2	gr/lb	7.0 g/kg
Rel. Humidity:	87	%	
Dilution Air:			
Temperature:	75.0	°F	23.9 °C
Abs. Humidity	53.7	gr/lb	7.7 g/kg
Rel. Humidity:	41	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,307.8	65.36
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.73	0.08
Sample Rate:	1.52	0.04
20X20 Sample Rate:	36.01	1.02
Chemistry Sample Rate:	0.139	0.080
Total Flow Rate:	2,345.50	66.50

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		5.99	ppm	
HC Bckgrd	n/a		4.00	ppm	
CO Sample	n/a		37.60	ppm	(Dry)
CO Bckgrd	n/a		0.70	ppm	
NOx Sample	n/a		9.75	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.6672	%	(Dry)
CO2 Bckgrd	n/a		0.0450	%	
CH4 Sample	n/a	n/a	2.74	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.42	ppm	

Particulate Data

Filter Number:	5496.0-61 (pair)	
Weight Gain:	4.406	mg
Sample Multiplier:	1.544	

Correction Factors

NOx Humidity CF:	0.937
Dry-to-Wet CF, Sample:	0.981
Dry-to-Wet CF, Bckgrd:	0.988
Dilution Factor:	19.06

Test Cycle Data

Sample Time:	1,214.50	sec		
Work:	23.06	hp-hr	17.20	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr
Total Volume (Vmix):	47,474.1	scf	1,344.49	scm

Corrected Concentrations

HC	2.20	ppm	
CO	35.93	ppm	
NOx	9.47	ppm	
CO2	0.6117	%	
CH4	0.45	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.075	g/hp-hr	0.101	g/kW-hr
CO	2.439	g/hp-hr	3.271	g/kW-hr
NOx (Cell)	0.989	g/hp-hr	1.327	g/kW-hr
Particulate	0.295	g/hp-hr	0.396	g/kW-hr
CO2	652.5	g/hp-hr	874.97	g/kW-hr
BSFC	0.465	lb/hp-hr	0.283	kg/kW-hr
NMHC	0.064	g/hp-hr	0.086	g/kW-hr
CH4	0.017	g/hp-hr	0.023	g/kW-hr

Mass Emissions

HC		1.739	grams	
CO		56.243	grams	
NOx		22.811	grams	
Particulate		6.804	grams	
CO2		15.046	kg	
CH4		0.402	grams	
Fuel	10.73 lb		4.87 kg	

Analyzed: 02/20/2008 11:03

Southwest Research Institute - Department of Emissions Research
EPA Hot Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Test No.: NPADD-H13
Date: 01/25/2008 Time: 12:10
Program HDT: 4.12-R
Cell: 7 Bag Cart: 7

DIESEL 2D, EM-6514-F
HCR: 2.119 FID Resp: 1.00
H= 0.151 C= 0.849 O= 0.000 X= 0.000

Ambient/Test Cell Conditions

Barometer:	29.42	in Hg	99.6 kPa
Engine Inlet Air			
Temperature:	76.0	°F	24.4 °C
Dew Point:	49.6	°F	9.8 °C
Abs. Humidity:	53.7	gr/lb	7.7 g/kg
Rel. Humidity:	39	%	
Dilution Air:			
Temperature:	74.0	°F	23.3 °C
Abs. Humidity	55.5	gr/lb	7.9 g/kg
Rel. Humidity:	44	%	

Sample Flows

	scfm	scmm
Blower 1 Rate:	2,289.3	64.83
Blower 2 Rate:	0.0	0.00
90 mm System:		
Gas Meter 1:	1.21	0.03
Gas Meter 2:	2.67	0.08
Sample Rate:	1.45	0.04
20X20 Sample Rate:	37.06	1.05
Chemistry Sample Rate:	0.139	0.080
Total Flow Rate:	2,327.91	66.00

Measured Gaseous Data

	Meter	Range	Concentration		
HC Sample	n/a		5.97	ppm	
HC Bckgrd	n/a		4.60	ppm	
CO Sample	n/a		36.33	ppm	(Dry)
CO Bckgrd	n/a		0.70	ppm	
NOx Sample	n/a		8.26	ppm	(Dry)
NOx Bckgrd	n/a		0.10	ppm	
CO2 Sample	n/a		0.6523	%	(Dry)
CO2 Bckgrd	n/a		0.0440	%	
CH4 Sample	n/a	n/a	2.75	ppm	(1.00)
CH4 Bckgrd	n/a	n/a	2.45	ppm	

Particulate Data

Filter Number:	5552.0-62 (pair)	
Weight Gain:	4.082	mg
Sample Multiplier:	1.601	

Correction Factors

NOx Humidity CF:	0.948
Dry-to-Wet CF, Sample:	0.981
Dry-to-Wet CF, Bckgrd:	0.987
Dilution Factor:	19.50

Test Cycle Data

Sample Time:	1,214.20	sec		
Work:	22.68	hp-hr	16.91	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr
Total Volume (Vmix):	47,106.3	scf	1,334.08	scm

Corrected Concentrations

HC	1.61	ppm	
CO	34.68	ppm	
NOx	8.00	ppm	
CO2	0.5978	%	
CH4	0.42	ppm	(1.00)

Brake-Specific Emission Results

BSHC (Cell)	0.056	g/hp-hr	0.074	g/kW-hr
CO	2.375	g/hp-hr	3.184	g/kW-hr
NOx (Cell)	0.853	g/hp-hr	1.144	g/kW-hr
Particulate	0.288	g/hp-hr	0.387	g/kW-hr
CO2	643.3	g/hp-hr	862.72	g/kW-hr
BSFC	0.459	lb/hp-hr	0.279	kg/kW-hr
NMHC	0.047	g/hp-hr	0.063	g/kW-hr
CH4	0.016	g/hp-hr	0.022	g/kW-hr

Mass Emissions

HC		1.260	grams	
CO		53.855	grams	
NOx		19.350	grams	
Particulate		6.537	grams	
CO2		14.591	kg	
CH4		0.374	grams	
Fuel	10.41 lb		4.72 kg	

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Southwest Research Institute - Department of Emissions Research
Composite Transient Emission Test Results
Project No. 3-13200-001

Engine Model: 2007 Navistar
Engine Desc.:
Engine Cycle: Diesel
Engine S/N: 7046094

Date: 01/25/2008 Time: 11:29 DIESEL 2D, EM-6514-F
Program HDT: 4.12-R HCR: 2.119 FID Resp: 1.00
Cell: 7 Bag Cart: 7 H= 0.151 C= 0.849 O= 0.000 X= 0.000

Test Numbers
Cold: NPADD-C3 Hot: NPADD-H13

Brake-Specific Emission Results

BSHC (Cell)	0.058	g/hp-hr	0.078	g/kW-hr
CO	2.384	g/hp-hr	3.197	g/kW-hr
NOx (Cell)	0.873	g/hp-hr	1.171	g/kW-hr
Particulate	0.289	g/hp-hr	0.388	g/kW-hr
CO2	644.7	g/hp-hr	864.50	g/kW-hr
BSFC	0.460	lb/hp-hr	0.280	kg/kW-hr
NMHC	0.050	g/hp-hr	0.067	g/kW-hr
CH4	0.017	g/hp-hr	0.022	g/kW-hr
Work:	22.73	hp-hr	16.95	kW-hr
Reference Work:	22.70	hp-hr	16.93	kW-hr

Analyzed: 02/20/2008 11:03