



December 20, 2017

Office of the Chief Counsel
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
West Building, W14-227
Washington, DC 20590

Regarding: Request for [REDACTED] treatment of information contained in Volvo Car Corporation's 2018 pre-model year automotive fuel economy report.

Attached is the [REDACTED] version of Volvo Car Corporation's 2018 pre-model year automotive fuel economy report

This report contains information for which Volvo requests [REDACTED] treatment. [REDACTED] information is identified within the report in accordance with 49 CFR §512.4(a). Support for Volvo's claim of [REDACTED] is provided below in accordance with 49 CFR §512.4(b)

The information designated as [REDACTED] consists of model-specific projections of sales mix or marketing for the 2018 model year. It is located in attachment I exhibit I, exhibit II table 4, exhibit III and in attachment II exhibit I, exhibit II table 4, exhibit III. Volvo believes this information is entitled to [REDACTED] treatment under 5 USC §552(b)(4) as incorporated by reference in and modified by the statute under which the information is being submitted.

Furthermore, it is included within the scope of NHTSA's class determination identifying types of information that would presumptively be likely to result in substantial competitive harm if disclosed to the public, 49 CFR §512, Appendix B.

In accordance with 49 CFR §512.4(a), the top of each page containing [REDACTED] information has been marked "[REDACTED]". Materials claimed to be [REDACTED] within a page has been marked within brackets as per §512.6(b)(2).

NHTSA and EPA have consistently held this type of information [REDACTED]. NHTSA has made similar determinations with respect to the [REDACTED] information contained in pre-model year reports submitted prior to 2018 model year.

In the event you believe that all or part of the designated information is not entitled to [REDACTED] treatment, we request that you contact us to provide reasonable time so that we may have the opportunity to address the issue.

In addition to the above information, attached is the certificate in support of the request for [REDACTED] as required by 49 CFR §512.4(b).

Sincerely,

A handwritten signature in blue ink, appearing to read "Johan Bogren".

Johan Bogren, Vice President
Automotive Regulatory & Compliance



**CERTIFICATE IN SUPPORT OF
REQUEST FOR [REDACTED]**

I, Johan Bogren, pursuant to the provisions of 49 CFR 512, state as follows:

- (1). I am the Vice President of Automotive Regulatory & Compliance for Volvo Car Corporation (VCC) and am authorized by VCC to execute this certificate on its behalf.
- (2). I certify that the information contained in VCC's Pre-Model Year Automotive Fuel Economy Report related to model-specific projections of sales mix or marketing for the 2018 model year is [REDACTED] and proprietary data, and is being submitted with the claim that it is entitled to [REDACTED] treatment under 5 USC §552(b)(4), as incorporated by reference in and modified by the statute under which the information is being submitted.
- (3). I hereby request that the information contained in (2) above be protected through May 1, 2018.
- (4). This certification is based on information provided by the responsible VCC personnel who have authority in the normal course of business to release the information for which a claim of [REDACTED] has been made.
- (5). Based upon that information, to the best of my knowledge, information, and belief, the information for which VCC has claimed [REDACTED] treatment has never been released or become available outside VCC.
- (6). I make no representations beyond those contained in this certificate and, in particular, I make no representations as to whether this information may become available outside VCC because of unauthorized or inadvertent disclosure.
- (7). I certify under penalty of perjury that the foregoing is true and correct.

Executed on this the 20th day of December, 2017.

A handwritten signature in blue ink, appearing to be "J. Bogren", written over the text of the execution date.



December 20, 2017

Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
West Building
Washington, DC 20590

Regarding: Volvo Car Corporation's 2018 Pre-Model Year Automotive Fuel Economy Report

Pursuant to the requirements of 49 USC Section 32907 (a), Volvo Car Corporation hereby submits its 2018 Pre-Model Year Automotive Fuel Economy Report as described in 49 CFR §537. This letter and attachments comprise the report.

Attachments I (Passenger Car) and II (Light Duty Truck) contain required fuel economy information for those model types and vehicle configurations certified by EPA as of December 12, 2017, using projected model year sales based on Volvo's 2018 model year latest production plans and already produced 2018 model year vehicles. Estimated CAFE values for Volvo passenger cars include the CAFE adjustment factor in accordance with 40 CFR §600.510-12(e), using a "c" factor of 0.0014 provided by the Environmental Protection Agency (EPA).

As allowed in 49 CFR part 600 subpart F section 600.510-12(c)(3), it is Volvo's intention to apply Fuel Consumption improvement according to subparagraph (i) Air Conditioning improvement and (ii) Off Cycle technology improvement. At this time only Air Conditioning improvement values are included in this report since Volvo is still evaluating the use of Off Cycle technology improvement.

This report has been prepared by Mr. Per-Anders Lennvi, Volvo Car Corporation Sweden. If you have any questions on this submission please do not hesitate to contact Mr. Per-Anders Lennvi, at +46-313255647, email per-anders.lennvi@volvocars.com or Mr. Gregory Buffalino of our New Jersey office at 201-2818714, email gregory.buffalino@volvocars.com.

Drive Safely,

Volvo Car Corporation

A handwritten signature in blue ink, appearing to read "Johan Bogren".

Johan Bogren, Vice President
Automotive Regulatory & Compliance



Volvo Car USA, LLC

2018 Pre-Model Year Automotive Fuel Economy Report

TABLE OF CONTENTS

	Topic	Applicable Section of 49 CFR §537.7
Attachment I	Passenger Car Fuel Economy Information	
Exhibit I	Model Type Summary & CAFE Status	(b) (3), (c) (1), (c) (2)
Exhibit II	Configuration Summaries	(c) (3), (4)
Table 1	Engine Horsepower	
Table 2	Model Dimensional Data	
Table 3	Footprint Data	
Table 4	Configuration Data	
Table 5	Code Descriptions	
Exhibit III	Fuel Consumption Improvement Information	
Exhibit IV	Addendum to Preceding Exhibits	
Attachment II	Light Duty Truck Fuel Economy Information	
Exhibit I	Model Type Summary & CAFE Status	(b) (3), (c) (1), (c) (2)
Exhibit II	Configuration Summaries	(c) (3), (4)
Table 1	Engine Horsepower	
Table 2	Model Dimensional Data	
Table 3	Footprint Data	
Table 4	Configuration Data	
Table 5	Code Descriptions	
Exhibit III	Fuel Consumption Improvement Information	
Exhibit IV	Addendum to Preceding Exhibits	
Attachment III	Light Truck Vehicle Information	(C) (5)
Attachment IV	Fuel Economy Methodology Used in Projecting CAFE	537.9 (a) (2), (3)
Attachment V	Addendum to the Report	



Attachment I

Passenger Car Fuel Economy Information



CAFE - US Cars Model Type Summary / CAFE Status

Carline Name	Vehicle Class	Engine Name	Transmission Class	IWC	Tire Size	Wheelbase	Front Axle Track Width	Rear Axle Track Width	Average Track Width	Footprint	Projected Sales	City	Highway	MH	MH Rounded
S60	Compact Car	2.0T	S8F	4000	235/40 R18	109,3	62,0	61,7	61,8	46,9	1386	32,2547	51,3244	38,7304	38,7
S60	Compact Car	2.0T	S8F	4000	235/45 R18	109,3	62,0	61,7	61,8	46,9	191	32,2547	51,3244	38,7304	38,7
S60	Compact Car	2.0T	S8F	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	0	32,2547	51,3244	38,7304	38,7
V60	Small Station Wagon	2.0T	S8F	4000	235/45 R18	109,3	62,0	61,7	61,8	46,9	528	32,2547	51,3244	38,7304	38,7
V60	Small Station Wagon	2.0T	S8F	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	99	32,2547	51,3244	38,7304	38,7
S60 Inscription	Compact Car	2.0T	S8F	4000	235/45 R18	112,5	62,0	61,7	61,8	48,3	1695	32,2547	51,3244	38,7304	38,7
S60 Inscription	Compact Car	2.0T	S8F	4000	235/40 R19	112,5	62,0	61,7	61,8	48,3	771	32,2547	51,3244	38,7304	38,7
S90 FWD	Midsize Car	2.0T	S8F	4000	245/45 R18	120,5	64,0	64,0	64,0	53,6	1456	30,5196	48,9251	36,7391	36,7
S90 FWD	Midsize Car	2.0T	S8F	4000	255/40 R19	120,5	63,6	63,6	63,6	53,2	1695	30,5196	48,9251	36,7391	36,7
S90 FWD	Midsize Car	2.0T	S8F	4000	255/35 R20	120,5	63,6	63,6	63,6	53,2	0	30,5196	48,9251	36,7391	36,7
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	245/45 R18	115,8	64,0	64,0	64,0	51,5	0	30,5196	48,9251	36,7391	36,7
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	255/40 R19	115,8	63,6	63,6	63,6	51,1	196	30,5196	48,9251	36,7391	36,7
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	255/35 R20	115,8	63,6	63,6	63,6	51,1	54	30,5196	48,9251	36,7391	36,7
S60 AWD	Compact Car	2.0T	S8A	4000	235/40 R18	109,3	62,0	61,7	61,8	46,9	1835	28,7000	45,6206	34,4498	34,4
S60 AWD	Compact Car	2.0T	S8A	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	122	28,7000	45,6206	34,4498	34,4
V60 AWD	Small Station Wagon	2.0T	S8A	4000	235/40 R18	109,3	62,0	61,7	61,8	46,9	379	28,7000	45,6206	34,4498	34,4
V60 AWD	Small Station Wagon	2.0T	S8A	4000	235/40 R19	109,3	62,0	61,7	61,8	46,9	59	28,7000	45,6206	34,4498	34,4
S60 Inscription AWD	Compact Car	2.0T	S8A	4000	235/45 R18	112,5	62,0	61,7	61,8	48,3	2898	28,7000	45,6206	34,4498	34,4
S60 Inscription AWD	Compact Car	2.0T	S8A	4000	235/40 R19	112,5	62,0	61,7	61,8	48,3	390	28,7000	45,6206	34,4498	34,4
S90 AWD	Midsize Car	2.0T	S8A	4000	245/45 R18	120,5	64,0	64,0	64,0	53,6	2065	30,0000	46,0000	35,5670	35,6
S90 AWD	Midsize Car	2.0T	S8A	4000	255/40 R19	120,5	63,6	63,6	63,6	53,2	2511	30,0000	46,0000	35,5670	35,6
S90 AWD	Midsize Car	2.0T	S8A	4000	255/35 R20	120,5	63,6	63,6	63,6	53,2	0	30,0000	46,0000	35,5670	35,6
S60 AWD	Compact Car	2.0TS	S8A	4000	235/40R19	109,3	62,0	61,7	61,8	46,9	10	27,3282	43,7021	32,8702	32,9
V60 AWD	Small Station Wagon	2.0TS	S8A	4000	235/40R19	109,3	62,0	61,7	61,8	46,9	20	27,3282	43,7021	32,8702	32,9
S60 Polestar	Compact Car	2.0TS	S8A	4000	245/35 R20	109,3	62,0	61,7	61,8	46,9	54	24,8584	38,4594	29,5631	29,6
V60 Polestar	Small Station Wagon	2.0TS	S8A	4000	245/35 R20	109,3	62,0	61,7	61,8	46,9	147	24,8584	38,4594	29,5631	29,6
S90 AWD	Midsize Car	2.0TS	S8A	4500	245/45 R18	120,5	64,0	64,0	64,0	53,6	508	27,4052	44,5484	33,1450	33,1
S90 AWD	Midsize Car	2.0TS	S8A	4500	255/40 R19	120,5	63,6	63,6	63,6	53,2	2610	27,4052	44,5484	33,1450	33,1
S90 AWD	Midsize Car	2.0TS	S8A	4500	255/35 R20	120,5	63,6	63,6	63,6	53,2	1194	27,4052	44,5484	33,1450	33,1
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/45 R18	115,8	64,0	64,0	64,0	51,5	0	27,4052	44,5484	33,1450	33,1
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	255/40 R19	115,8	63,6	63,6	63,6	51,1	181	27,4052	44,5484	33,1450	33,1
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	255/35 R20	115,8	63,6	63,6	63,6	51,1	103	27,4052	44,5484	33,1450	33,1
S90 AWD	Midsize Car	2.0TSH	S8A	5000	255/40 R19	120,5	63,6	63,6	63,6	53,2	246	60,3150	81,5211	68,3114	68,3
S90 AWD	Midsize Car	2.0TSH	S8A	5000	255/35 R20	120,5	63,6	63,6	63,6	53,2	350	60,3150	81,5211	68,3114	68,3
Total Volume											23753				

CAFE Status excluding Fuel Consumption Improvement values The current estimate of Volvo's Passenger Car CAFE, based on a model year production forecast of [23.753] units. This estimate uses minimum CAFE data requirements	36,1
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CAFE Status including Fuel Consumption Improvement values According to §600.510-12(c) and as calculated in Exhibit III	36,7
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CAFE Requirement The current estimate of Volvo's Passenger Car CAFE Requirement, based on a model year production forecast of [23.753] units and calculated according to 49 CFR 531.5(b).	37,1
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Volvo Car Corporation
SAE Net Horsepower - Cars

Attachment I
Exhibit II
Table 1

Engine Name	Carline Name	(Hp)
2.0T	S60, S60 Inscription, V60	240
2.0T	XC60, S90, V90	250
2.0TS	S60, V60	302
2.0TS	S90, V90	316
2.0TS	S60 / V60 Polestar	362
2.0TSH	S90	313



Volvo Car Corporation

Car Dimensional Data

Attachment I

Exhibit II

Table 2

Vehicle Line	Body Style	Drive Type	Wheelbase (inches)	Interior Volume Index (ft3)	Frontal Area (ft3)
S60	Sedan	FWD	109,3	105,0	24,4
S60 AWD	Sedan	AWD	109,3	105,0	24,4
S60 Inscription	Sedan	FWD	112,5	107,8	24,4
S60 Inscription AWD	Sedan	AWD	112,5	107,8	24,4
S60 Polestar	Sedan	AWD	109,3	105,0	24,4
S90	Sedan	FWD	120,5	115,4	24,6
S90 AWD	Sedan	AWD	120,5	115,4	24,6
V60	Station Wagon	FWD	109,3	119,6	24,5
V60 AWD	Station Wagon	AWD	109,3	119,6	24,5
V60 Polestar	Station Wagon	AWD	109,3	119,6	24,5
XC60	Station Wagon	FWD	112,8	132,6	28,1
V90	Station Wagon	FWD	115,8	132,3	24,8
V90 AWD	Station Wagon	AWD	115,8	132,3	24,8



Car Footprint Data

Carline Name	Engine Name	Transmission Class	Tire Size	Wheelbase (in)	Front Track Width (in)	Rear Track Width (in)	Average Track Width (in)	Footprint (ft2)
S60	2.0T	S8F	235/40 R18	109,3	62,0	61,7	61,8	46,9
S60	2.0T	S8F	235/45 R18	109,3	62,0	61,7	61,8	46,9
S60	2.0T	S8F	235/40 R19	109,3	62,0	61,7	61,8	46,9
V60	2.0T	S8F	235/40 R18	109,3	62,0	61,7	61,8	46,9
V60	2.0T	S8F	235/45 R18	109,3	62,0	61,7	61,8	46,9
V60	2.0T	S8F	235/40 R19	109,3	62,0	61,7	61,8	46,9
S60 Inscription	2.0T	S8F	235/45 R18	112,5	62,0	61,7	61,8	48,3
S60 Inscription	2.0T	S8F	235/40 R19	112,5	62,0	61,7	61,8	48,3
XC60 FWD	2.0T	S8F	235/60 R18	112,8	64,9	65,1	65,0	50,9
XC60 FWD	2.0T	S8F	235/55 R19	112,8	64,9	65,1	65,0	50,9
XC60 FWD	2.0T	S8F	255/45R20	112,8	64,8	65,0	64,9	50,8
S90 FWD	2.0T	S8F	245/45 R18	120,5	64,0	64,0	64,0	53,6
S90 FWD	2.0T	S8F	255/40 R19	120,5	63,6	63,6	63,6	53,2
S90 FWD	2.0T	S8F	255/35 R20	120,5	63,6	63,6	63,6	53,2
V90 FWD	2.0T	S8F	245/45 R18	115,8	64,0	64,0	64,0	51,5
V90 FWD	2.0T	S8F	255/40 R19	115,8	63,6	63,6	63,6	51,1
V90 FWD	2.0T	S8F	255/35 R20	115,8	63,6	63,6	63,6	51,1
S60 AWD	2.0T	S8A	235/40 R18	109,3	62,0	61,7	61,8	46,9
S60 AWD	2.0T	S8A	235/45 R18	109,3	62,0	61,7	61,8	46,9
S60 AWD	2.0T	S8A	235/40 R19	109,3	62,0	61,7	61,8	46,9
V60 AWD	2.0T	S8A	235/40 R18	109,3	62,0	61,7	61,8	46,9
V60 AWD	2.0T	S8A	235/40 R19	109,3	62,0	61,7	61,8	46,9
S60 Inscription AWD	2.0T	S8A	235/45 R18	112,5	62,0	61,7	61,8	48,3
S60 Inscription AWD	2.0T	S8A	235/40 R19	112,5	62,0	61,7	61,8	48,3
S60 AWD	2.0TS	S8A	235/40R19	109,3	62,0	61,7	61,8	46,9
V60 AWD	2.0TS	S8A	235/40R19	109,3	62,0	61,7	61,8	46,9
S60 Polestar	2.0TS	S8A	245/35 R20	109,3	62,0	61,7	61,8	46,9
V60 Polestar	2.0TS	S8A	245/35 R20	109,3	62,0	61,7	61,8	46,9
S90 AWD	2.0TS	S8A	245/45 R18	120,5	64,0	64,0	64,0	53,6
S90 AWD	2.0TS	S8A	255/40 R19	120,5	63,6	63,6	63,6	53,2
S90 AWD	2.0TS	S8A	255/35 R20	120,5	63,6	63,6	63,6	53,2
V90 AWD	2.0TS	S8A	245/45 R18	115,8	64,0	64,0	64,0	51,5
V90 AWD	2.0TS	S8A	255/40 R19	115,8	63,6	63,6	63,6	51,1
V90 AWD	2.0TS	S8A	255/35 R20	115,8	63,6	63,6	63,6	51,1



Carline Name	Engine Name	Engine Displ (l)	EPA Engine Config	# cyl	Engine Aspiration	Calibration	Transmission Class	Over Drive	Axle Ratio	Min N/V	Max N/V	Min ETW	Max ETW	Min TRLHP	Max TRLHP	Min LVW	Max LVW	Projected Sales	MH FE
S60	2.0T	2.0	1	4	T	J26:2	S8F	Yes	2,77	24,4	25,5	3875	3875	10,5	12,2	3886	3886	1577	38,7304
V60	2.0T	2.0	1	4	T	J40:2	S8F	Yes	2,77	24,4	25,5	4000	4000	11,3	13,1	4007	4007	627	38,7304
S60 Inscription	2.0T	2.0	1	4	T	J40:2	S8F	Yes	2,77	24,4	24,5	4000	4000	10,3	10,6	4005	4005	2466	38,7304
S90	2.0T	2.0	1	4	T	J10:6	S8F	Yes	3,08	26,5	26,9	4250	4250	11,1	11,7	4183	4183	158	36,7391
S90	2.0T	2.0	1	4	T	J98:2	S8F	Yes	3,08	26,5	26,9	4250	4250	11,1	11,7	4183	4183	2993	36,7391
V90	2.0T	2.0	1	4	T	J10:10	S8F	Yes	3,08	26,5	26,9	4250	4250	11,9	12,6	4005	4005	250	36,7391
S60 AWD	2.0T	2.0	1	4	T	J40:10	S8A	Yes	3,08	27,2	28,3	4000	4000	11,6	13,3	4032	4032	1957	34,4498
V60 AWD	2.0T	2.0	1	4	T	J40:10	S8A	Yes	3,08	27,2	28,3	4250	4250	12,5	14,4	4184	4184	438	34,4498
S60 Inscription AWD	2.0T	2.0	1	4	T	J40:12	S8A	Yes	3,08	27,2	27,3	4250	4250	11,5	11,8	4150	4150	3288	34,4498
S90 AWD	2.0T	2.0	1	4	T	J10:8	S8A	Yes	3,20	27,6	28,0	4250	4250	11,5	12,1	4362	4362	366	35,5670
S90 AWD	2.0T	2.0	1	4	T	J98:4	S8A	Yes	3,20	27,6	28,0	4250	4250	11,5	12,1	4362	4362	4210	35,5670
S90 AWD	2.0TS	2.0	1	4	TS	JA2:4	S8A	Yes	3,20	27,6	28,0	4500	4500	11,8	12,4	4505	4505	160	33,1450
S90 AWD	2.0TS	2.0	1	4	TS	J99:2	S8A	Yes	3,20	27,6	28,0	4500	4500	11,8	12,4	4505	4505	4152	33,1450
V90 AWD	2.0TS	2.0	1	4	TS	JA2:6	S8A	Yes	3,20	27,6	28,0	4500	4500	12,5	12,8	4482	4482	284	33,1450
S60 AWD	2.0TS	2.0	1	4	TS	J49:2	S8A	Yes	3,08	27,2	27,3	4000	4000	11,2	11,7	4121	4121	10	32,8702
V60 AWD	2.0TS	2.0	1	4	TS	J49:2	S8A	Yes	3,08	27,2	27,3	4250	4250	12,2	12,7	4235	4235	20	32,8702
S60 Polestar	2.0TS	2.0	1	4	TS	JA0:2	S8A	Yes	3,33	29,0	29,0	4250	4250	12,8	12,8	4142	4142	54	29,5631
V60 Polestar	2.0TS	2.0	1	4	TS	JA0:2	S8A	Yes	3,33	29,0	29,0	4250	4250	13,6	13,6	4244	4244	147	29,5631
S90 AWD	2.0TSH	2.0	1	4	TS	JBC:4	S8A	Yes	3,20	26,9	27,6	5000	5000	11,5	12,0	4916	4916	524	68,3114
S90 AWD	2.0TSH	2.0	1	4	TS	JBR:6	S8A	Yes	3,20	26,9	27,6	5000	5000	11,5	12,0	4916	4916	72	68,3114
Total Volume																		23753	



Code	Definition
EPA Engine Config Code	
1	In-line
Engine Aspiration	
T	Turbocharged
N	Naturally aspirated
TS	Turbocharged & Supercharged
TSH	Turbocharged & Supercharged, PHEV
Transmission Class	
Pos 1	S=Semi Automatic, M=Manual
Pos 2	Number of forward gears
Pos 3	F=Front Wheel Drive, A=All Wheel Drive



Volvo Car Corporation
 Fuel Consumption Improvement Information

Vehicle Lifetime Miles 195264

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagrams]	FCIV _{AC} [gal/mile]	Off Cycle Credits [gpm]	OCcredit [megagrams]	FCIV _{OC} [gal/mile]	Final CAFE including Credits
Carline Name	Drive	Engine	Trans								
S60 FWD	2WD	2.0L	S8	1 577	3,8	1170	0,000476	0,0	0	0,00000000	36,7
V60 FWD	2WD	2.0L	S8	627	3,8	465		0,0	0		
S60 Inscription FWD	2WD	2.0L	S8	2 466	3,8	1830		0,0	0		
S90 FWD	2WD	2.0L	S8	3 151	4,8	2953		0,0	0		
V90 FWD	2WD	2.0L	S8	250	4,8	234		0,0	0		
S60 AWD	4WD	2.0L	S8	1 957	3,8	1452		0,0	0		
V60 AWD	4WD	2.0L	S8	438	3,8	325		0,0	0		
S60 Inscription AWD	4WD	2.0L	S8	3 288	3,8	2440		0,0	0		
S90 AWD	4WD	2.0L	S8	4 576	4,8	4289		0,0	0		
S90 AWD	4WD	2.0L	S8	4 312	4,8	4041		0,0	0		
V90 AWD	4WD	2.0L	S8	284	4,8	266		0,0	0		
S60 AWD	4WD	2.0L	S8	10	3,8	7		0,0	0		
V60 AWD	4WD	2.0L	S8	20	3,8	15		0,0	0		
S60 Polestar AWD	4WD	2.0L	S8	54	3,8	40		0,0	0		
V60 Polestar AWD	4WD	2.0L	S8	147	3,8	109		0,0	0		
S90 AWD	4WD	2.0L	S8	596	0	0		0,0	0		
Sum				23753		19636		0			

$$FCIV_{AC} \text{ (gal/mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$FCIV_{OC} \text{ (gal/mi)} = \frac{(OCcredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$\text{Average MPG} = \frac{1}{\left[\frac{1}{MPG} - (FCIV_{AC} + FCIV_{OC} + FCIV_{PU}) \right]}$$



Attachment I Exhibit IV

Addendum to Preceding Exhibits Passenger Cars

Format Modifications

Several format modifications have been made to this report. Ref 49 CFR §537.7(c)(3), "Other formats such as those accepted by EPA which contain all the required information in a readily identifiable form are also acceptable." To communize NHTSA reporting with EPA Reporting, some EPA codes are used in this report. For a description of these codes, see Exhibit II, Table 5.

Requested data that is not specifically stated in the previous exhibits includes:

- All carlines use three-way catalysts for emission control
- All carlines use sequential fuel injection
- All engines are Otto spark

Optional Equipment

Optional equipment considered to be actually installed on the vehicle configuration for fuel economy testing purposes under 40 CFR Parts 86 and 600 (Air Conditioning, Power Steering and Anti-lock Brakes), are now standard equipment. The curb weight of the vehicle configuration used for fuel economy testing purposes includes the weight of optional equipment as required under 40 CFR Parts 86 and 600.



Attachment II

Light Duty Truck Fuel Economy Information



CAFE - US Trucks Model Type Summary / CAFE Status

Truckline Name	Vehicle Class	Engine Name	Transmission Class	IWC	Base Tire	Wheelbase	Front Axle Track Width	Rear Axle Track Width	Average Track Width	Footprint	Projected Sales	City	Highway	MH	MH Rounded
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	235/60 R18	117,5	65,5	65,6	65,6	53,5	943	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	235/55 R19	117,5	65,5	65,6	65,6	53,5	1856	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	275/45 R20	117,5	65,8	65,9	65,8	53,7	3627	27,4000	40,5000	32,0676	32,1
XC90 AWD	Standard SUV 4WD	2.0T	S8A	5000	275/35 R22	117,5	65,8	65,9	65,8	53,7	8	27,4000	40,5000	32,0676	32,1
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	235/60 R18	117,5	65,5	65,6	65,6	53,5	0	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	235/55 R19	117,5	65,5	65,6	65,6	53,5	354	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	275/45 R20	117,5	65,8	65,9	65,8	53,7	813	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	275/40 R21	117,5	65,8	65,9	65,8	53,7	1454	28,6000	41,9000	33,3660	33,4
XC90 FWD	Standard SUV 2WD	2.0T	S8F	4500	275/35 R22	117,5	65,8	65,9	65,8	53,7	70	28,6000	41,9000	33,3660	33,4
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	235/60R18	112,8	64,9	65,1	65,0	50,9	2368	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	235/55R19	112,8	64,9	65,1	65,0	50,9	2340	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	255/45R20	112,8	64,8	65,0	64,9	50,8	9895	27,9000	39,1000	32,0285	32,0
XC60 AWD	Small SUV 4WD	2.0T	S8A	4500	255/40R21	112,8	65,0	65,2	65,1	51,0	257	27,9000	39,1000	32,0285	32,0
V60 CC AWD	Compact Car	2.0T	S8A	4000	235/50 R18	109,2	63,3	61,7	62,5	47,4	2152	27,8000	43,5000	33,1906	33,2
V60 CC AWD	Compact Car	2.0T	S8A	4000	235/45 R19	109,2	63,3	61,7	62,5	47,4	244	27,8000	43,5000	33,1906	33,2
S60 CC AWD	Small Station Wagon	2.0T	S8A	4000	235/50 R18	109,2	63,3	61,7	62,5	47,4	271	27,8000	43,5000	33,1906	33,2
S60 CC AWD	Small Station Wagon	2.0T	S8A	4000	235/45 R19	109,2	63,3	61,7	62,5	47,4	21	27,8000	43,5000	33,1906	33,2
V90CC AWD	Midsize Station Wagon	2.0T	S8A	4500	235/55 R18	115,8	64,9	64,6	64,8	52,1	287	28,9000	44,1000	34,2053	34,2
V90CC AWD	Midsize Station Wagon	2.0T	S8A	4500	235/50 R19	115,8	64,9	64,6	64,8	52,1	1475	28,9000	44,1000	34,2053	34,2
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	235/55 R19	117,5	65,5	65,6	65,6	53,5	4646	25,7763	37,6936	30,0519	30,1
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	275/45 R20	117,5	65,8	65,9	65,8	53,7	10170	25,7763	37,6936	30,0519	30,1
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	275/40 R21	117,5	65,8	65,9	65,8	53,7	8607	25,7763	37,6936	30,0519	30,1
XC90 AWD	Standard SUV 4WD	2.0TS	S8A	5000	275/35 R22	117,5	65,8	65,9	65,8	53,7	327	25,7763	37,6936	30,0519	30,1
XC60 AWD	Small SUV 4WD	2.0TS	S8A	4500	235/55R19	112,8	64,9	65,1	65,0	50,9	2794	26,1000	38,2000	30,4387	30,4
XC60 AWD	Small SUV 4WD	2.0TS	S8A	4500	255/45R20	112,8	64,8	65,0	64,9	50,8	10167	26,1000	38,2000	30,4387	30,4
XC60 AWD	Small SUV 4WD	2.0TS	S8A	4500	255/40R21	112,8	65,0	65,2	65,1	51,0	533	26,1000	38,2000	30,4387	30,4
V90 CC AWD	Midsize Station Wagon	2.0TS	S8A	4500	235/50 R19	115,8	64,9	64,6	64,8	52,1	423	27,5513	42,4025	32,7061	32,7
V90 CC AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/45 R20	115,8	65,0	64,7	64,8	52,1	1325	27,5513	42,4025	32,7061	32,7
V90 CC AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/40 R21	115,8	65,0	64,7	64,8	52,1	1	27,5513	42,4025	32,7061	32,7
XC60 AWD	Small SUV 4WD	2.0TSH	S8A	5000	235/55R19	112,8	64,9	65,1	65,0	50,9	400	57,5000	66,5000	61,2290	61,2
XC60 AWD	Small SUV 4WD	2.0TSH	S8A	5000	255/45R20	112,8	64,8	65,0	64,9	50,8	1577	57,5000	66,5000	61,2290	61,2
XC60 AWD	Small SUV 4WD	2.0TSH	S8A	5000	255/40R21	112,8	65,0	65,2	65,1	51,0	103	57,5000	66,5000	61,2290	61,2
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	235/55 R19	117,5	65,5	65,6	65,6	53,5	38	58,1000	71,4000	63,4157	63,4
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	275/45 R20	117,5	65,8	65,9	65,8	53,7	430	58,1000	71,4000	63,4157	63,4
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	275/40 R21	117,5	65,8	65,9	65,8	53,7	943	58,1000	71,4000	63,4157	63,4
XC90 AWD	Standard SUV 4WD	2.0TSH	S8A	5500	275/35 R22	117,5	65,8	65,9	65,8	53,7	74	58,1000	71,4000	63,4157	63,4
Total Volume											70993				

CAFE Status excluding Fuel Consumption Improvement values The current estimate of Volvo's Truck CAFE, based on a model year production forecast of [70.993] units. This estimate uses minimum CAFE data requirements	32,0
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CAFE Status including Fuel Consumption Improvement values According to §600.510-12(c) and as calculated in Exhibit III	32,8
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CAFE Requirement The current estimate of Volvo's Truck CAFE Requirement, based on a model year production forecast of [70.993] units and calculated according to 49 CFR 531.5(b).	30,6
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Volvo Car Corporation
SEA Net Horsepower - Trucks

Attachment II
Exhibit II
Table 1

Engine Name	Truckline Name	Power (Hp)
2.0T	S60 / V60CC	240
2.0T	XC60, XC90, V90CC	250
2.0TS	XC60, XC90, V90CC	316
2.0TSH	XC60, XC90	313



Volvo Car Corporation
Truck Dimensional Data

Attachment II
Exhibit II
Table 2

Vehicle Line	Drive Type	Wheelbase (inches)	Passenger Carrying Volume (ft3)	Cargo Carrying Volume (ft3)	Frontal Area (ft3)
S60CC	AWD	109,2	93,0	12,0	24,4
V60CC	AWD	109,2	92,1	24,4	25,6
V90CC	AWD	115,8	98,4	30,1	25,5
XC60	AWD	112,8	102,9	25,8	28,1
XC90 5-seater	FWD	117,5	103,8	40,2	29,9
XC90 7-seater	FWD	117,5	103,8	41,8	29,9
XC90 5-seater	AWD	117,5	103,8	40,2	29,9
XC90 7-seater	AWD	117,5	103,8	41,8	29,9



Truckline Name	Engine Name	Transmission Class	Tire Size	Wheelbase (in)	Front Track Width (in)	Rear Track Width (in)	Average Track Width (in)	Footprint (ft2)
XC90 AWD	2.0T	S8A	235/60 R18	117,5	65,5	65,6	65,6	53,5
XC90 AWD	2.0T	S8A	235/55 R19	117,5	65,5	65,6	65,6	53,5
XC90 AWD	2.0T	S8A	275/45 R20	117,5	65,8	65,9	65,8	53,7
XC90 AWD	2.0T	S8A	275/35 R22	117,5	65,8	65,9	65,8	53,7
XC90 FWD	2.0T	S8F	235/60 R18	117,5	65,5	65,6	65,6	53,5
XC90 FWD	2.0T	S8F	235/55 R19	117,5	65,5	65,6	65,6	53,5
XC90 FWD	2.0T	S8F	275/45 R20	117,5	65,8	65,9	65,8	53,7
XC90 FWD	2.0T	S8F	275/35 R22	117,5	65,8	65,9	65,8	53,7
XC60 AWD	2.0T	S8A	235/60R18	112,8	64,9	65,1	65,0	50,9
XC60 AWD	2.0T	S8A	235/55R19	112,8	64,9	65,1	65,0	50,9
XC60 AWD	2.0T	S8A	255/45R20	112,8	64,8	65,0	64,9	50,8
XC60 AWD	2.0T	S8A	255/40R21	112,8	65,0	65,2	65,1	51,0
V60 CC AWD	2.0T	S8A	235/50 R18	109,2	63,3	61,7	62,5	47,4
V60 CC AWD	2.0T	S8A	235/45 R19	109,2	63,3	61,7	62,5	47,4
S60 CC AWD	2.0T	S8A	235/50 R18	109,2	63,3	61,7	62,5	47,4
S60 CC AWD	2.0T	S8A	235/45 R19	109,2	63,3	61,7	62,5	47,4
V90 CC AWD	2.0T	S8A	235/55 R18	115,8	64,9	64,6	64,8	52,1
V90 CC AWD	2.0T	S8A	235/50 R19	115,8	64,9	64,6	64,8	52,1
XC90 AWD	2.0TS	S8A	235/55 R19	117,5	65,5	65,6	65,6	53,5
XC90 AWD	2.0TS	S8A	275/45 R20	117,5	65,8	65,9	65,8	53,7
XC90 AWD	2.0TS	S8A	275/40 R21	117,5	65,8	65,9	65,8	53,7
XC90 AWD	2.0TS	S8A	275/35 R22	117,5	65,8	65,9	65,8	53,7
XC60 AWD	2.0TS	S8A	235/55R19	112,8	64,9	65,1	65,0	50,9
XC60 AWD	2.0TS	S8A	255/45R20	112,8	64,8	65,0	64,9	50,8
XC60 AWD	2.0TS	S8A	255/40R21	112,8	65,0	65,2	65,1	51,0
V90 CC AWD	2.0TS	S8A	235/50 R19	115,8	64,9	64,6	64,8	52,1
V90 CC AWD	2.0TS	S8A	245/45 R20	115,8	65,0	64,7	64,8	52,1
V90 CC AWD	2.0TS	S8A	245/40 R21	115,8	65,0	64,7	64,8	52,1
XC60 AWD	2.0TSH	S8A	235/55R19	112,8	64,9	65,1	65,0	50,9
XC60 AWD	2.0TSH	S8A	255/45R20	112,8	64,8	65,0	64,9	50,8
XC60 AWD	2.0TSH	S8A	255/40R21	112,8	65,0	65,2	65,1	51,0
XC90 AWD	2.0TSH	S8A	235/55 R19	117,5	65,5	65,6	65,6	53,5
XC90 AWD	2.0TSH	S8A	275/45 R20	117,5	65,8	65,9	65,8	53,7
XC90 AWD	2.0TSH	S8A	275/40 R21	117,5	65,8	65,9	65,8	53,7
XC90 AWD	2.0TSH	S8A	275/35 R22	117,5	65,8	65,9	65,8	53,7



Volvo Car Corporation
Truck Configuration Data



Truckline Name	Engine Name	Engine Displ (l)	EPA Engine Config	# cyl	Engine Aspiration	Calibration	Transmission Class	Over Drive	Axle Ratio	Min N/V	Max N/V	Min ETW	Max ETW	Min TRLHP	Max TRLHP	Min LVW	Max LVW	Projected Sales	MH FE
XC90 AWD	2.0T	2.0	1	4	T	J10:4	S8A	Yes	3,33	26,1	26,7	5000	5000	15,0	16,3	4982	4982	6434	32,0676
XC90 FWD	2.0T	2.0	1	4	T	J10:2	S8F	Yes	3,33	26,1	26,7	4750	4750	13,9	15,1	4752	4752	2691	33,3660
XC60 AWD	2.0T	2.0	1	4	T	J40:16	S8A	Yes	3,33	26,5	26,7	4500	4500	15,4	16,0	4436	4436	14860	32,0285
V90 CC AWD	2.0T	2.0	1	4	T	J40:12	S8A	Yes	3,33	27,0	27,6	4500	4500	12,7	13,4	4514	4514	1762	34,2053
S60 CC AWD	2.0T	2.0	1	4	T	J40:14	S8A	Yes	3,33	28,4	28,4	4000	4000	11,9	14,4	4146	4146	292	33,1906
V60 CC AWD	2.0T	2.0	1	4	T	J40:14	S8A	Yes	3,33	28,4	28,4	4250	4250	12,7	15,5	4228	4228	2396	33,1906
XC90 AWD	2.0TS	2.0	1	4	TS	JA2:2	S8A	Yes	3,33	26,1	26,7	5000	5000	15,8	17,1	5039	5039	23750	30,0519
XC60 AWD	2.0TS	2.0	1	4	TS	JA2:10	S8A	Yes	3,33	26,5	26,7	4500	4500	15,4	16,6	4568	4568	13494	30,4387
V90 CC AWD	2.0TS	2.0	1	4	TS	JA2:8	S8A	Yes	3,33	27,0	27,6	4500	4500	12,7	13,4	4528	4528	1749	32,7061
XC60 AWD	2.0TSH	2.0	1	4	TS	JBR:4	S8A	Yes	3,33	26,5	26,7	5000	5000	15,0	15,8	5100	5100	2080	61,2290
XC90 AWD	2.0TSH	2.0	1	4	TS	JBR:2	S8A	Yes	3,33	26,1	26,7	5500	5500	14,5	16,4	5464	5464	1485	63,4157
Total Volume																		70993	



Code	Definition
EPA Engine Config Code	
1	In-line
Engine Aspiration	
T	Turbocharged
N	Naturally aspirated
TS	Turbocharged & Supercharged
TSH	Turbocharged & Supercharged, PHEV
Transmission Class	
Pos 1	S=Semi Automatic, M=Manual
Pos 2	Number of forward gears
Pos 3	F=Front Wheel Drive, A=All Wheel Drive



Volvo Car Corporation
 Fuel Consumption Improvement Information

Vehicle Lifetime Miles 225865

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagrams]	FCIV _{AC} [gal/mile]	Off Cycle Credits [gpm]	OCCredit [megagrams]	FCIV _{OC} [gal/mile]	Final CAFE including Credits
Carline Name	Drive	Engine	Trans								
XC90 T5 AWD	2WD	2.0L	S8	6 434	6,8	9882	0,000721	0,0	0	0,00000000	32,8
XC90 T5	2WD	2.0L	S8	2 691	6,8	4133		0,0	0		
XC60 T5 AWD	2WD	2.0L	S8	14 860	6,8	22823		0,0	0		
V60 CC T5 AWD	2WD	2.0L	S8	2 396	5,4	2922		0,0	0		
S60 CC T5 AWD	2WD	2.0L	S8	292	5,4	356		0,0	0		
V90 CC T5 AWD	4WD	2.0L	S8	1 762	6,8	2706		0,0	0		
XC90 T6 AWD	4WD	2.0L	S8	23 750	6,8	36477		0,0	0		
XC60 T6 AWD	4WD	2.0L	S8	13 494	6,8	20725		0,0	0		
V90 CC T6 AWD	4WD	2.0L	S8	1 749	6,8	2686		0,0	0		
XC90 T8 AWD	4WD	2.0L	S8	1 485	0	0		0,0	0		
XC60 T8 AWD	4WD	2.0L	S8	2 080	0	0		0,0	0		
Sum				70993		102710			0		

$$FCIV_{AC} \text{ (gal / mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$FCIV_{OC} \text{ (gal / mi)} = \frac{(OCCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$\text{Average MPG} = \frac{1}{\frac{1}{MPG} - (FCIV_{AC} + FCIV_{OC} + FCIV_{Pu})}$$



Attachment II Exhibit IV

Addendum to Preceding Exhibits Light-Duty Trucks

Format Modifications

Several format modifications have been made to this report. Ref 49 CFR §537.7(c)(3), "Other formats such as those accepted by EPA which contain all the required information in a readily identifiable form are also acceptable." To communize NHTSA reporting with EPA Reporting, some EPA codes are used in this report. For a description of these codes, see Exhibit II, Table 5.

Requested data that is not specifically stated in the previous exhibits includes:

- All trucklines use three-way catalysts for emission control
- All trucklines use sequential fuel injection
- All engines are Otto spark

Optional Equipment

Optional equipment considered to be actually installed on the vehicle configuration for fuel economy testing purposes under 40 CFR Parts 86 and 600 (Air Conditioning, Power Steering and Anti-lock Brakes), are now standard equipment. The curb weight of the vehicle configuration used for fuel economy testing purposes includes the weight of optional equipment as required under 40 CFR Parts 86 and 600.



Light Truck Vehicle Information

		Truck Criteria						3-Row Seating
		not<28 deg	not<14 deg	not<20 deg	not<20 cm	not<18 cm		
Truckline Name	4-Wheel Drive	Approach Angle	Breakover Angle	Departure Angle	Running Clearance	Front Axle Clearance	Rear Axle Clearance	
S60CC AWD	Yes	19,4	20,7	25,7	20,1	20,1	23,1	No
V60CC AWD	Yes	19,4	20,7	25,7	20,1	20,1	23,1	No
V90CC AWD	Yes	18,9	17,7	20,7	20,1	21,0	25,2	No
XC60 AWD	Yes	23,1	20,8	25,5	21,6	22,5	23,2	No
XC90 FWD	No	23,8	21,3	23,3	23,8	23,8	24,4	Yes
XC90 AWD	Yes	23,8	21,3	23,3	23,8	23,8	24,4	Yes

All values in the above table are determined at EPA Curb Weight



Attachment IV

Fuel Economy Methodology used in projecting CAFE values

Derived Fuel Economy Values

As provided for by 49 CFR §537.9(a)(3), Volvo has used analytically derived fuel economy values, data substitutions and best internal estimates where no EPA approved or Volvo tests results exists at the appropriate sub configuration level for minimum test requirements. These values are derived from a base configuration (ETW), axle ratio, road load horsepower, and engineering judgment.



Attachment V

Addendum to the Report

The information contained in this report is, to the best of Volvos knowledge, accurate and complete. This report is filed subject to the following provisions.

- 49 CFR §537.7(b)(5) requires that a manufacturer state whether the projected average fuel economy submitted herein, sufficiently represent the manufacturers average and target fuel economy for the current model year for purposes of the act. Volvo hereby represents that, to the best of its present knowledge and belief, it has followed the testing procedures and calculation methods required by EPA in computing fuel economy values for its passenger cars and light trucks. Without waiving its right to later challenge any of the fuel economy testing procedures and methods, Volvo further represents that projected CAFE values contained in the attachments are as sufficiently representative as practicable of Volvo's passenger cars and light truck CAFE values for the purpose of the act, based on the projected sales volumes in the attachments and the relevant EPA test procedures and methods specified in 40 CFR, part 600 subpart F.
- Additional test data and/or analytical data may be substituted for data supplied herewith if warranted after further review and analysis. Such substitutions will be done in accordance with EPA guidelines and requirements