

NAFTA/MEXICAN TRUCK EMISSIONS OVERVIEW

(11/12/04 Rev. 01/21/05)

Background

The North American Free Trade Agreement (NAFTA) started in June of 1990 when then Mexico President Carlos Salinas de Gortari and U.S. President George Bush announced their intention to negotiate a free trade agreement. Three years later, after considerable political debate, the U.S. Congress ratified it by a vote of 234-201 in the House and 61 to 38 in the Senate in November of 1993. The implementing legislation then went to President Clinton for his signature and on January 1, 1994 NAFTA went into effect.

Years of legal controversy followed over numerous NAFTA issues, especially environmental issues, and on June 7, 2004 the U.S. Supreme Court issued a decision (541U.S. ____2004, No. 03-358) overturning a previous 9th Circuit Court of Appeals decision which had directed the U.S. Department of Transportation, Federal Motor Carrier Safety Administration (FMCSA) to conduct a full environmental impact study as required under the National Environmental Policy Act and a full State Implementation Plan (SIP) conformity determination as required under the Federal Clean Air Act Amendments of 1990. Pending the completion of these studies, a moratorium remained in effect limiting Mexican truck travel into the U.S. to the "20 mile commercial zone".

The implementation of the transportation provisions of NAFTA is now imminent as the FMCSA prepares to lift the travel moratorium. Commercial vehicles (trucks and buses) from Mexico and the U.S. will be allowed to travel freely in each other's country once these provisions are implemented. Currently, these vehicles are limited to travel into each other's country to a 20 mile commercial zone.

The following bullets discuss the anticipated emissions and air quality impacts of the increased Mexican commercial vehicle travel into the U.S. and specifically California. ***It is important to note that these impacts are from various studies and many assumptions underlie them. Actual emissions and air quality impacts will be determined once NAFTA is fully implemented.***

Additionally, this paper discusses recently introduced federal legislation and enacted state legislation, planned mitigation strategies and contact information.

Increased Truck Crossings Into the U.S.

- Approximately 30,000 additional truck crossings per day into the four Border States: Texas, New Mexico, Arizona and California based on projections from current border crossing activity and surveys of Mexican

fleets. The largest border crossing is Ciudad Juarez-El Paso followed by Tijuana-Otay Mesa (San Diego).

- Currently, 3500 trucks cross into California each day (approximately 3000 at Otay Mesa and 500 at Calexico/Mexicali). These trucks are limited to travel in a 20 mile commercial zone. These crossings may increase 2 to 5 times to 7,000 to 17,500 per day.
- Additionally, increased crossings at the California/Arizona border on Interstate 8 are anticipated as Mexican trucks from the Nogales region and beyond plus trucks from Texas and New Mexico come west to use the Port of Los Angeles. Baja California does not have a comparable large shipping port. In anticipation of this increased traffic, and increased shipping demand from the Asian market, the Port of Los Angeles is undergoing significant expansion and will double its capacity in the next 2 to 5 years. It is already the second largest and busiest port in the U.S. The surrounding freeways that service this port (Interstate 110 and Interstate 710) are already severely impacted by truck traffic.

Mexican Truck Fleet Profile/Emissions Standards

- 66% of the Mexican truck fleet is 1993 model year and older (1993 was when the diesel engine fleet was close to 100% electronic conversion, which means that engines built in 1993 and later typically use electronic fuel injection and computer controls to reduce emissions, improve performance and fuel economy).
- 25% of the Mexican truck fleet is pre 1980 model year (these engines emit very high levels of Nitrogen Oxide (NOx) and Particulate Matter (PM) emissions on average).
- Mexican diesel engine emission standards were aligned with the USEPA standards for the 1994 to 2003 model years (see Attachment A)*. Mexico has not revised its emission standards to reflect recent U.S. standards which require a 50% reduction in NOx for 2004-2007 engines and a 90% reduction in NOx and PM for 2007 and subsequent model year engines. The 2007 engine standards also require the use of ultra low sulfur diesel fuel (15 parts per million (ppm) sulfur), which is not yet required in Mexico.

* Mexico: On-road vehicle and engines emission standards
<http://www.dieselnet.com/standards/mx/index.html>

Truck Emission Factors US/Canada v. Mexican (grams per mile)*

<i>Year</i>	<i>NOx g/mile</i>	<i>Delta</i>	<i>PM g/mile</i>	<i>Delta</i>	<i>Mode**</i>
1999 US/C	12.8	-----	0.75	-----	Highway
1999 MX	19.3	+6.5 (51%)	1.13	+.38 (51%)	Highway
2010 US/C	1.38	-----	0.051	-----	Highway
2010 MX	4.73	+3.35 (243%)	0.262	+.211 (414%)	Highway

These are fleet average emission rates and the 2010 year figures reflect the 2007 USEPA emissions standards discussed above. Canadian engine emissions standards are aligned with the USEPA engine emission standards.

* North American Trade and Transportation Corridors: Environmental Impacts and Mitigation Strategies, Final Report – Prepared for the North American Commission for Environmental Cooperation by ICF Consulting, August 2001.
www.cec.org

**Idling emission factors are listed in Attachment B.

California Air Quality Impacts

- Various studies has modeled the air quality impacts of the increased Mexican truck travel into California under NAFTA and the worst case scenario is 50 additional tons per day of NOx and 2.5 tons per day of PM in the South Coast Air Basin alone. (See Sierra Research Report No. SR02-04-01: Critical Review of “Safety Oversight for Mexico-Domiciled Commercial Motor Carriers, Final Programmatic Environmental Assessment,” Prepared by John A. Volpe Transportation Systems Center, January 2002).

NAFTA Mexican Truck Emissions Mitigation Strategies

- **S. 2842** (Boxer/Feinstein/Jeffords) was introduced on September 23, 2004. This bill would amend title 49 of the United States Code to require motor carriers (truckers) to comply with vehicle emission performance standards established by the USEPA and for other purposes. This bill is cited as “The Clean Trucks Act of 2004”. This bill would require the FMCSA (and likely the U.S. Customs Service) to withhold access of any Mexican heavy duty diesel powered vehicles unless it meets USEPA emissions standards for the year model of the vehicle’s engine. Recall that USEPA and Mexican heavy duty diesel engine emissions standards were only aligned for the 1994 to 2003 model years. If this bill was enacted into law, new Mexican trucks would not be allowed into the U.S.

This bill was referred to the Senate Committee on Commerce, Science and Transportation and is pending action by this committee.

- **H.R. 5314** (Filner/Millender-McDonald, Carson and Sandlin) was introduced on October 8, 2004 and is the House version of S. 2842.
- **AB 1009** (Pavley) was signed into law by the Governor on September 29, 2004 as urgency legislation (Chapter 873, Statutes of 2004). This bill amends Health and Safety Code section 43701 and requires the ARB, in consultation with the CHP, to adopt regulations by January 1, 2006, **to the extent permissible under federal law** (*emphasis added*), which would require all commercial motor trucks over 10,000 pounds gross vehicle weight entering California to possess evidence that its engine met the federal (USEPA) emissions standards for that model year. ARB staff is beginning to develop these regulations.

Other Planned or Possible Mitigation Strategies

- Expand the Tijuana Inspection and Maintenance (I/M) Project to cover all vehicles and expand this pilot program to all urban areas in Baja California (Ensenada, Mexicali, etc.)
- Expand the California Council on Diesel Education and Technology Program (CCDET) training program for the Society of Automotive Engineers (SAE) J1667 heavy duty diesel engines smoke emissions test procedure and heavy-duty diesel engine repair at sites along the border and in Baja California.
- Continued aggressive enforcement of the Heavy Duty Vehicle Inspection Program (HDVIP) along the border region and at the Port of Los Angeles/Long Beach. Trucks in these regions typically have failure rates for excessive smoke emissions and/or tampering at approximately two times the statewide average rate (approximately 12% v. approximately 6%). The ARB has conducted enforcement at these sites on an intermittent basis since the implementation of the HDVIP in November 1991 and full time at the Mexican border crossings since 1999 as a result of SB 270 (Peace) of 1998.
- Continued aggressive collections (under Vehicle Code section 27159) of delinquent HDVIP citations at the Mexican border and statewide.

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ATTACHMENT A

Comparison of U.S. and Mexico Heavy-Duty Diesel Vehicle Emission Standards (in grams per brake horsepower-hour)

Year	Hydrocarbons (HC)		Carbon Monoxide (CO)		Nitrogen Oxides (NOx)		Particulate Matter (PM)	
	U.S.	Mexico	U.S.	Mexico	U.S.	Mexico	U.S.	Mexico
1974-78 ^a	-	-	40.0	-	-	-	-	-
1979-83 ^b	1.5	-	25.0	-	-	-	-	-
1984-87	1.3	-	15.5	-	10.7	-	-	-
1988-89	1.3	-	15.5	-	10.7	-	0.6	-
1990	1.3	-	15.5	-	6.0	-	0.6	-
1991-93	1.3	-	15.5	-	5.0	-	0.25	-
1994-97	1.3	1.3	15.5	15.5	5.0	5.0	0.1	0.1
1998-2003	1.3	1.3	15.5	15.5	4.0	4.0	0.1	0.1
2004-2006 ^{c,d,e}	0.5	1.3	15.5	15.5	2.0	4.0	0.1	0.1
2007+	0.14	1.3	15.5	15.5	0.2	4.0	0.01	0.1

a: U.S. had combined HC+NOx standard of 16 g/bhp-hr

b: U.S. had combined HC+NOx standard of 10 g/bhp-hr

c: Under a consent decree with U.S. EPA, engine makers implemented the 2004 standards in October 2002

d: Standards allow the option of 2.4 g/bhp-hr NMHC+NOx, or 2.5 g/bhp-hr NMHC+NOx and 0.5 NMHC

e: Assumes no future change in Mexican emission standards

ATTACHMENT B

Table 4: Truck Emission Factors, Freeway

		Truck Emission Factors, Freeway (g/mile)				
		NO _x	VOC	CO	PM ₁₀	CO ₂
1999	US/Canada	12.8	1.06	6.50	0.75	1612
	Mexico Line Haul	19.3	1.50	7.28	1.13	1612
2020	US/Canada	1.38	0.32	6.21	0.051	1612
	Mexico	4.73	0.96	6.21	0.262	1612

Table 5: Truck Emission Factors, Idling

		Truck Emission Factors, Idling (g/minute)				
		NO _x	VOC	CO	PM ₁₀	CO ₂
1999	US/Canada	0.78	0.21	1.76	0.036	173
	Mexico Drayage	1.72	0.39	2.44	0.082	173
2020	US/Canada	0.08	0.05	1.68	0.003	173
	Mexico	0.32	0.19	1.95	0.017	173