

## **Appendix E**

# **COMPLIANCE EXAMPLES FOR THE PROPOSED AMENDMENTS**



Staff developed a number of examples to demonstrate what actions would be required of fleets based on the proposed amendments. All of the following examples are for a fleet with 10 trucks or a small fleet with three heavier trucks (GVWR greater than 26,000 pounds) with engine model years ranging from 1992 to 2007. The examples demonstrate how a fleet would comply utilizing the low mileage work truck phase-in option, the NOx exempt area extension, and the planned retirement option.

## **A. Low Mileage Work Truck Phase-In Option Example**

Staff is proposing to replace the existing low mileage construction truck extension with a new extension that applies to work trucks and allows an extended compliance schedule for work trucks that travel less than a total of 20,000 miles per compliance year.

### **1. Ten Truck Fleet Example**

This example fleet consists of 10 work trucks that are operated less than 20,000 miles per year. The fleet initially reported to use the low mileage construction truck extension for eight of the 10 trucks. By 2014, particulate matter (PM) filters were installed on three trucks to meet the 33 percent compliance requirement. In the existing regulation the fleet owner would have been required to install four more PM filters by 2015, and the last three PM filters by 2016.

The proposed amendments provide the fleet owner additional time to comply as shown in the Table E-1. The fleet owner would install two PM filters by 2014 and one additional PM filter by 2015. In conjunction with the truck that has a 2007 model year (MY) engine that has an originally equipped PM filter, this meets the 40 percent requirement. The owner could then replace trucks with 2010 MY engine trucks instead of installing PM filters by replacing two trucks by 2016, two trucks by 2017, and two trucks by 2018. The owner would then start replacing trucks with PM filters by replacing the truck with a 2003 MY engine by 2021 and the three remaining trucks by 2023.

**Table E-1. Example of Compliance Using Work Truck Extension for Large Fleet**

Engine Year	January 1 of Compliance Year					
	2014	2015	2016	2017	2018	Next Steps
1992			2010 MY			
1994			2010 MY			
1998				2010 MY		
1999				2010 MY		
2000					2010 MY	
2001					2010 MY	
2003		PM Filter				Replace in 2021
2004	PM Filter					Replace in 2023
2006	PM Filter					Replace in 2023
2007	OEM PM Filter					Replace in 2023

## 2. Small Fleet Example

This fleet consists of three work trucks, where two of the trucks operate less than 20,000 miles per year. The fleet was initially reported to use the small fleet option and installed a PM filter on one truck by 2014. To meet the requirements of the existing regulation, the fleet owner would install a PM filter on the second truck by 2015 and on the third truck by 2016.

The proposed amendments provide the owner additional time to comply as shown in the Table E-2. The fleet owner would install a PM filter by 2016 on the second truck and would consider replacing the third truck with a truck with a 2010 or newer engine by 2018. The replacement of the truck that had a PM filter installed by 2014 would have until 2023 to meet the replacement requirements (2010 or newer MY engine) and the truck that had a PM filter installed by 2016 would need to be replaced by 2021.

**Table E-2. Example of Compliance Using Work Truck Extension for Small Fleet**

Engine Model Year	January 1 of Compliance Year					
	2014	2015	2016	2017	2018	Next Steps
1998	PM Filter					Replace 2023
2000			PM Filter			Replace 2021
2005					2010 MY	

## B. NOx Exempt Area Extension

The proposed amendments to the NOx exempt area extension will allow fleets operating exclusively in designated NOx exempt areas of the state to delay PM filter

requirements until January 1, 2020. Table E-3 shows the proposed PM filter phase-in schedule for fleets utilizing the NOx exempt area extension.

**Table E-3. NOx Exempt Area Extension PM Filter Phase-in Requirements (Proposed Amendments)**

Year	Entire Fleet Percentage	One Truck Fleet	Two Truck Fleet	Three Truck Fleet
2015	20%			1
2016	40%		1	
2017	55%	1		1
2018	70%			
2019	85%		1	1
2020	100%			

**1. Ten Truck Fleet Example**

This fleet consists of 10 vehicles that are all operated exclusively in a designated NOx exempt area. The fleet initially reported to use the NOx exempt area extension and installed PM filters on three trucks to meet the 33 percent requirement by 2014 in the existing regulation. The owner would then install four PM filters by 2015 and the last three PM filters by 2016.

The proposed amendments would allow additional time to comply. The fleet owner would install a PM filter on the fourth vehicle by 2016 and install PM filters on two more trucks by 2017. The owner would then consider replacing vehicles with 2007 MY engines or newer instead of installing the PM filters by replacing one vehicle by 2018, two more vehicles by 2019, and the remaining one vehicle by 2020 as shown in the Table E-4.

**Table E-4. Example of Compliance with the NOx Exempt Area Extension for Large Fleet**

Engine Model Year	January 1 of Compliance Year					
	2015	2016	2017	2018	2019	2020
1992						2010 MY
1994					2009 MY	
1998					2009MY	
1999				2008 MY		
2000			PM Filter			
2001			PM Filter			
2003		PM Filter				
2004 (with PM filter)						
2005 (with PM filter)						
2007 (OEMDPF)						

## 2. Small Fleet Example

This small fleet consists of three vehicles with a PM filter installed on one of the vehicles by 2014. The fleet owner would install a PM filter on the second vehicle by 2015 and the third vehicle by 2016 to meet the requirements of the existing regulation. The proposed amendments would delay the PM filter requirement on the second vehicle until January 1, 2017 and the fleet owner would consider replacing the third vehicle by 2019 as shown in Table E-5.

**Table E-5. Example of Compliance with the NOx Exempt Area Extension for Small Fleet**

Engine Model Year	January 1 of Compliance Year					
	2015	2016	2017	2018	2019	2020
1998 (PM Filter)						
2000			PM Filter			
2005					2009MY	

## C. Planned Retirement Option

Staff is proposing a new flexibility option that waives the PM filter requirement for up to three vehicles in a fleet if they are upgraded to 2010 model year engines or newer by January 1, 2018. To qualify, fleet owners must have been denied a loan for purposes of compliance after July 1, 2013 and opt-in by reporting no later than January 31, 2015.

### 1. 10 Truck Fleet Example

This example fleet consists of 10 vehicles currently using the engine MY schedule. Table E- 6 shows how the example fleet would comply using the proposed planned retirement option.

**Table E- 6. Compliance Example Using Planned Retirement Option for Large Fleet**

Engine Model Year	January 1 of Compliance Year				
	2015	2016	2017	2018	Next Steps
1992	Report to Claim Planned Retirement			2010 MY	
1994	Report to Claim Planned Retirement			2010 MY	
1998 (PM Filter)					Replace 2020
1999 (PM Filter)					Replace 2020
2000 (PM Filter)					Replace 2021
2001 (PM Filter)					Replace 2021
2003 (PM Filter)					Replace 2021
2004 (PM filter)					Replace 2021
2005 (PM filter)					Replace 2022
2007 (OEMDPF)					Replace 2023

By January 1, 2014, the example fleet met the PM filter requirements using the engine MY schedule. By 2015, the fleet designated two of the trucks for planned retirement using the proposed planned retirement option. The existing regulation would require the fleet owner to install a PM filter on the truck with a 1992 MY engine by 2015 and on the truck with a 1994 MY engine by 2016. Using the proposed planned retirement option, the fleet owner would delay the replacement requirements on the trucks without PM filters for two years on one truck and three years on another truck.

**2. Small Fleet Example**

This small fleet consists of three vehicles with a PM filter installed on one of the vehicles by 2014. The fleet owner would install a PM filter on the second vehicle by 2015 and the third vehicle by 2016 to meet the requirements of the existing regulation. Using the proposed planned retirement option, the fleet would delay the replacement requirements on the two trucks without PM filters for two years on one truck and three years on another truck as shown in the Table E- 7.

**Table E- 7. Example of Compliance with Planned Retirement Option for Small Fleet**

Engine Model Year	January 1 of Compliance Year					
	2015	2016	2017	2018	2019	Next Steps
1998 (PM Filter)						2010 MY by 2023
2000	Report to Claim Planned Retirement			2010 MY		
2005	Report to Claim Planned Retirement			2010 MY		

#### **D. Small Fleet Compliance Option**

The proposed amendments include a modification to the existing small fleet option that delays the PM filter compliance requirement for the second and third trucks in a small fleet. In the existing regulation, small fleets are required to install PM filters on the second and third trucks by January 1, 2015 and January 1, 2016, respectively. The proposed amendments require the second truck to meet the PM filter requirements by January 1, 2016 and the third truck by January 1, 2018. The proposed amendments allow greater flexibility for small fleets to comply and improve the opportunity for small fleets to take advantage of public funding.

#### **E. Log Truck Phase-in Option**

The proposed amendments allow fleets to opt into the log truck phase-in option by January 31, 2015. The proposed amendments will allow additional fleets to take advantage of this option or opt out in order to use other flexibility options that may be more advantageous for the fleet. For example, a fleet that operates exclusively in Tuolumne County and opted into the log truck phase-in option in 2014 was required to replace 10 percent of their trucks per year starting in 2014. Using the proposed amended log truck phase in option and the expanded NOx exempt area extension, which now includes Tuolumne County, the fleet can now opt out of the log truck phase-in option and claim the NOx exempt area extension. This would give fleet owners the option to install PM filters on their vehicles rather than replace.

#### **F. Heavy Cranes Extension**

The proposed amendments include a new flexibility option for fleets with heavy cranes. The heavy crane extension requires the fleet to upgrade heavy cranes to a crane with a 2010 or newer MY engine at a rate of 10 percent per year starting in January 1, 2018, until January 1, 2027. The proposed amendments would allow fleet owners to phase in replacement of heavy cranes rather than install PM filters since installation of PM filter retrofits on crane engines may conflict with existing crane certification requirements, and could present safety concerns. Modifications to cranes require a manufacturer or registered professional engineer who is familiar with the equipment to review and approve any modifications to the crane, and may require modifications to load charts, procedures, instruction manuals and other items as needed. Staff is also proposing to provide credit for heavy cranes that are equipped with a retrofit or original equipment PM filter before January 1, 2018, by counting such cranes towards meeting the proposed 2010 engine requirement. This credit would recognize crane owners that have already retrofitted or upgraded to newer cranes. These cranes would also be exempt from the replacement requirement.