

## Chapter 4

### Section 4.04

Ministry of the Environment and Climate Change

# Drive Clean Program

Follow-up to VFM Section 3.04, 2012 Annual Report

RECOMMENDATION STATUS OVERVIEW					
	# of Actions Recommended	Status of Actions Recommended			
		Fully Implemented	In Process of Being Implemented	Little or No Progress	Will Not Be Implemented
Recommendation 1	2		1	1	
Recommendation 2	3	1	1	1	
Recommendation 3	3		2	1	
Recommendation 4	2	1			1
Recommendation 5	2		2		
Recommendation 6	1		1		
<b>Total</b>	<b>13</b>	<b>2</b>	<b>7</b>	<b>3</b>	<b>1</b>
<b>%</b>	<b>100</b>	<b>15</b>	<b>54</b>	<b>23</b>	<b>8</b>

## Background

The Ministry of the Environment (Ministry) introduced the mandatory Drive Clean vehicle emissions program in 1999 as part of its strategy to reduce smog in Ontario. The program identifies vehicles whose emission controls are malfunctioning, and it requires that the owners of such vehicles have them repaired.

The program currently tests vehicles once they are seven years old, or those older than one year if ownership is to be transferred. Light-duty vehicles that were built before 1988 are exempt from the

program because they were not required to be built with emissions-reduction controls. Otherwise, all vehicles must pass an emissions test for the owner to renew the registration or transfer ownership. Some owners whose vehicles fail the emissions test can get a conditional pass, which allows them to renew their vehicle registration but not to transfer ownership. This can occur when the cost to repair a vehicle so that it will pass an emissions test is expected to be more than \$450. The Ministry implemented this \$450 repair cost limit to alleviate some of the vehicle owner's financial burden—getting the conditional pass means the owner does not have to have the vehicle repaired.

Emissions tests and/or repairs are performed at approximately 1,700 Drive Clean facilities, which are private auto shops accredited by the Ministry. All testing facilities are electronically linked to the Ministry's Drive Clean database, which maintains a record of all tests and any related repairs made.

The methods used to test emissions depend primarily on the type of vehicle and how it is powered:

- Light-duty gasoline-powered vehicles are tested using the on-board diagnostic (OBD) testing method. Vehicles built after 1997 have a built-in OBD system that continuously checks the condition and operation of key emissions-control components and emissions-related systems in a vehicle. A vehicle will fail an emissions test if the testing equipment detects that the OBD system has identified a problem. This testing method was adopted on January 1, 2013.
- Heavy-duty non-diesel vehicles and certain light-duty vehicles built in 1997 or earlier are tested by the two-speed idle method, which is less stringent than the OBD testing method.
- Heavy-duty diesel vehicles are tested using the opacity test method, where smoke density is measured by a smoke sensor.
- Light-duty diesel vehicles are inspected visually for emissions.

As of December 2013, approximately 8 million light-duty vehicles (7.6 million in 2011) and more than 250,000 heavy-duty vehicles (300,000 in 2011) were registered in Ontario. Similar to 2011, about 90% of these vehicles are registered in the geographic area covered by the program. In 2013, more than 2.3 million light-duty vehicles (2.5 million in 2011) and, similar to 2011, more than 100,000 heavy-duty vehicles received a Drive Clean test.

Vehicle owners pay a fee to the Drive Clean facility that conducts their emissions test. A portion of this fee is remitted to the Ministry as revenue. In the 2013/14 fiscal year, the Ministry collected \$28 million in test revenue (\$30 million in 2011/12) and spent approximately \$19 million

to deliver the Drive Clean program (\$19 million in 2011/12), of which \$9 million was paid to a private-sector service provider that administers the program on the Ministry's behalf (\$12 million in 2011/12). The \$19 million in program expenditures does not include indirect costs such as corporate overhead, pension and severance. On April 1, 2014, the Ministry reduced the test fee from \$35 to \$30 for light-duty vehicles in order to reduce the accumulated program surplus of \$23 million by June 2020.

In our *2012 Annual Report*, we found that overall the Drive Clean program had effective procedures in place to ensure that vehicles were getting tested and that vehicles whose emissions exceed the province's limits were being identified for repair.

We found that on-road vehicle emissions declined significantly from 1998 to 2010 and were no longer among the major domestic contributors to smog in Ontario. (Half of Ontario's smog came from pollutants that originated in the United States.) As well, ministry emissions estimates showed that more than 75% of the reduction in vehicle emissions since the Drive Clean program's inception was actually due to factors other than the program, including tighter manufacturing standards on emissions-control technologies, federal requirements for cleaner fuel and the fact that older vehicles were being retired. The Ministry further estimated that, since 2007, the Drive Clean program was responsible for reducing the remaining smog-causing vehicles emissions by about 36% annually.

Some of the other significant issues we noted during our audit were as follows:

- Beginning January 1, 2013, the program was to begin using an on-board diagnostic (OBD) testing method, which can only test vehicles built after 1997. As a result, vehicles built from 1988 to 1997, which experienced a failure rate of 11% to 31% in 2010 when tested with a dynamometer, will be tested using only the two-speed idle method, which uses less stringent emissions limits than either the dynamometer or the OBD testing methods.

As a result, the initial pass rate for these older vehicles will likely improve, even though there will be no real improvement in emissions performance, and fewer of these older vehicles that require repairs will be identified.

- Because vehicle owners are not required to incur any repair costs if the repair estimate exceeds \$450, about 18,000 vehicles were not fully repaired in 2011. As a result, these vehicles can continue to be driven even though their emissions exceed Ministry-prescribed limits. The average repair bill paid by owners of vehicles that received a conditional pass was only \$255. The most commonly diagnosed cause of excessive emissions in 2010—a faulty catalytic converter—was repaired in only one-third of cases. For vehicles that had only partial repairs in 2011, the emission readings after the repair were actually worse for all pollutants in 25% of the vehicles, and worse for at least one of the pollutants in half of the vehicles. Without full repairs, a vehicle's emission control system will continue to malfunction, and emissions will fluctuate.
- The Ministry outsources six program services, including the monitoring of Drive Clean facilities for non-compliant or fraudulent activities, to the private sector. At the time of our 2012 audit, it had consolidated the six separate private-sector service delivery contracts into one contract and expected a 40% reduction in annual costs. Under the previous contract, the Ministry had been diligent in requiring its service provider to conduct upwards of 1,400 covert audits a year. These and other audit efforts identified about 3,000 non-compliance issues annually. However, prior to the planned introduction of a new compliance program in 2013, the Ministry reduced the number of covert audits in 2012 to a fraction of what it previously required the service provider to conduct. Given that covert audits have a deterrent effect on Drive Clean

facilities, a decrease in the number of covert audits increases the risk of non-compliant or fraudulent activities.

- Although one of the program's stated goals is to maintain a high level of public acceptance, the Ministry had not established performance targets or attempted to measure whether or not this goal had been achieved in more than a decade. The only survey to measure public support for the Drive Clean program had been done 12 years ago. As a result, public support for the program is unknown.

We made a number of recommendations for improvement and received commitments from the Ministry that it would take action to address them.

## Status of Actions Taken on Recommendations

The Ministry provided us with information in the spring and summer of 2014 on the current status of our recommendations. According to this information, the Ministry has fully implemented two of the actions recommended in our *2012 Annual Report* and made some progress in implementing many of the others. For example, the Ministry has developed a risk-based compliance strategy and annual compliance plan to target vulnerable areas in the program to improve program integrity. However, a few recommended actions are requiring more time to be fully addressed. For example, the Ministry has not yet completed a formal evaluation of the program's effectiveness in reducing smog relative to the cost and impact of other initiatives that have been put in place to reduce smog and improve overall air quality.

The status of the actions taken on each recommendation is described in the following sections.

## Program Effectiveness

### Recommendation 1

*To ensure that policy-makers are provided with current and relevant information, the Ministry of the Environment should formally evaluate the extent to which the Drive Clean program continues to be an effective initiative in reducing smog relative to the cost and impact of any other initiatives for reducing smog and improving overall air quality.*

**Status:** In the process of being implemented.

*In addition, the Ministry should periodically evaluate its progress against all stated program goals and report the results of its assessments publicly on a timely basis.*

**Status:** Little or no progress.

### Details

Our 2012 Annual Report noted that the Drive Clean program had reduced smog-causing emissions from light-duty vehicles by 335,000 tonnes from inception to 2010, but this represented less than 25% of the total reduction in light-duty vehicle emissions. More than 75% of the reduction was actually due to factors other than the Drive Clean program, such as tighter manufacturing standards on emission-control technologies, federal requirements for cleaner fuels and ongoing retirement of old vehicles. During this follow-up, we updated our analysis in this area by including Ministry-estimated emissions data for light-duty vehicles tested in 2011 and 2012 and noted that the total reduction in light-duty vehicle emissions attributable to the Drive Clean program increased to almost 400,000 tonnes since program inception. However, as a proportion of total vehicle emissions reductions, it accounted for less than 20%; more than 80% of the total emissions reductions for light-duty vehicles from program inception to 2012 can be attributed to factors other than the Drive Clean program. In 2012, the Drive Clean program helped reduce smog-causing emissions not otherwise eliminated by other factors, by 35%, a figure comparable to each of the five preceding years.

The Ministry informed us that it had started some work to compare the cost-effectiveness of the Drive Clean program with other smog-reducing initiatives. Specifically, in April 2014, the Ministry engaged a third-party consultant to determine the total reduction in nitrogen oxide emissions and volatile organic compound emissions from the iron and steel industry, the cement industry, the petroleum refining industry, and the pulp and paper industry; and the cost per tonne of these reduced emissions. The consultant was also to gather the same information for the reductions of these emissions from light-duty vehicles that can be attributed to the Drive Clean program. The Ministry plans to compare the cost per tonne of reductions among the different Ontario initiatives responsible for the reductions from the different emitters. This comparison is intended to help determine which initiative has greater impact and is more cost-effective. This work was expected to be completed in late fall 2014.

As stated in our 2012 Annual Report, the Drive Clean program has four key goals—reducing vehicle-related emissions of smog-causing pollutants; attaining a high degree of public acceptance; achieving revenue neutrality over the program's lifespan, with full-cost recovery via test fees; and maintaining business integrity (that is, zero tolerance for fraud). At the time of our follow-up, we found that the Ministry still had not established quantifiable targets and performance measures for all four of its key goals. Furthermore, although some efforts were made to monitor aspects of these goals, other than the estimated emissions reductions, the Ministry had not publicly reported the results of any assessments.

In our 2012 Annual Report we reported that the Ministry was not publicly reporting information on a timely basis. For instance, summary reports on Drive Clean emissions reductions for vehicles tested in 2009 and 2010 were publicly released in 2012. In August 2014, the Ministry released summary versions of the Drive Clean emissions-reduction reports prepared by consultants, for the vehicles

tested in 2011 and 2012. Moreover, we noted that there has been less public reporting since our 2012 audit. For example, the Ministry was no longer disclosing on its website a list of individuals and Drive Clean facilities that had been convicted of fraud-related offences, or a list of Drive Clean facilities that had been suspended or terminated in the last three years.

## Vehicles Subject To Testing

### Recommendation 2

*To help assess the appropriateness of vehicles exempted from testing and the geographical area covered by the Drive Clean program, the Ministry of the Environment should:*

- *review initial pass/fail rates and evaluate estimated vehicle emissions by model year;*

**Status: Little or no progress.**

- *formally analyze the impact of excluding all light-duty vehicles except those in the 10 larger municipalities in the Windsor-Quebec City corridor; and*

**Status: Fully Implemented**

- *work with the Ministry of Transportation on a strategy for verifying the legitimacy of farmers' vehicle registrations.*

**Status: In the process of being implemented.**

### Details

The Ministry engages external consultants to calculate emission reductions and analyze Drive Clean test data results. In order to ensure that the Drive Clean program detects those vehicles most likely to pollute the most, it would be prudent for the Drive Clean program to analyze pass/fail rates and emission reductions by model year. We reviewed the consultants' reports on estimated emission reductions produced since our last audit, which were for vehicles tested in 2011 and 2012, and noted that, similar to our audit findings in 2012:

- an analysis of pass/fail rates by model year was performed for light-duty vehicles, but not for heavy-duty vehicles; and
- an analysis of emissions reductions by model year had not been performed for either light-duty or heavy-duty vehicles.

The Ministry informed us that, instead, it was assessing the performance of vehicles under seven years old that are tested for resale, to inform future program design. The Ministry expected to complete this analysis by fall 2014. In addition, the Ministry completed a review of pre-1988 light-duty vehicles, which are exempt from Drive Clean testing because, at the time they were manufactured, they were not required to have catalytic converters or other pollution emission-control equipment. Based on this review, pre-1988 light-duty vehicles represented 1.7% of the vehicle population in Ontario and accounted for 9% of total emissions in the program area in 2012. According to ministry calculations, emissions released from these vehicles will decrease as the vehicle population decreases – by 2020, the Ministry expects pre-1988 light-duty vehicles to represent less than 1% of the vehicles registered in Ontario.

In our *2012 Annual Report*, we reported that although the program's geographic boundary contained more than 30 municipalities, 10 of these—or one-third—accounted for two-thirds of the province's passenger vehicles and population. In addition, we reported that the Ministry had never formally assessed whether excluding those vehicles not located in these 10 municipalities from the required biennial testing could be done with little or no adverse effect on the environment. In July 2014, the Ministry completed an analysis of the appropriateness of the program's geographic boundary. The Ministry calculated that if the program boundary for light-duty vehicles was limited to only the 10 largest municipalities in the Windsor-Quebec corridor, emissions reductions for 2012 would be 27% less (22,100 tonnes versus 30,300 tonnes).

Vehicles registered to farmers are exempt from Drive Clean emission testing. To this end, in our

2012 Annual Report, we noted that vehicle owners, who were identifying themselves as farmers at the time of vehicle registration or re-registration, were not required to show proof that they were indeed farmers. We recommended that a strategy be developed for verifying the legitimacy of farmers' vehicle registrations, a recommendation that was reiterated in our 2013 audit of ServiceOntario. At the time of our follow-up, the Ministry of Transportation (MTO) was working with the Ministry of Agriculture and Food, and the Ministry of Rural Affairs to require applicants to provide proof they had a farming business in order to be eligible for farm plate registration. In this regard, MTO is proposing that applicants for new farm plates be required to provide one of the following four pieces of documentation to demonstrate they have a farm business: a farm organization membership card; a gross farm income exemption certificate; an exemption letter from the Agriculture, Food and Rural Affairs Appeal Tribunal; or a letter from Agricorp. Individuals who currently own farm plates would not be required to show proof at the time of licence plate renewal. MTO stated it would monitor farm plate requests and determine if further action was required. In April 2014, the ministries mentioned above consulted with accredited farm organizations, including the Ontario Federation of Agriculture, the Christian Farmers Federation of Ontario and the National Farmers Union-Ontario, to review and seek input on MTO's proposed option. MTO informed us that it expected to implement the new requirements for farm plate registration by January 2015.

## Conditional Pass

### Recommendation 3

To help ensure that polluting vehicles are repaired once emission problems are identified, the Ministry of the Environment should consider:

- increasing or eliminating the repair cost limit;  
**Status: In the process of being implemented.**

- requiring vehicles that receive a conditional pass to be retested annually rather than biennially;  
and

**Status: Little or no progress.**

- limiting the number of conditional passes allowed over a vehicle's lifetime.

**Status: In the process of being implemented.**

### Details

In January 2014, the Ministry completed a jurisdictional scan comparing Ontario with other North American jurisdictions on some aspects of the program. The scope of the scan included a review of practices surrounding repair cost limits and the number of conditional passes allowed over a vehicle's life, but not the frequency of testing required for a vehicle that received a conditional pass or waiver. Through the jurisdictional scan, the Ministry found that more than half of the other North American jurisdictions with vehicle emissions testing programs were stricter than Ontario, in that they either had a higher repair cost limit or no repair cost limit, and, therefore did not issue conditional passes. The Ministry further noted that, unlike Ontario, six North American jurisdictions allowed only one conditional pass to be issued over a vehicle's lifetime. We noted similar comparison results during our 2012 audit.

The Ministry informed us that it would continue its analysis on the repair cost limit and conditional passes using the 2013 Drive Clean test data. It expected to complete the review by December 2014.

## Emissions Test Methods

### Recommendation 4

To optimize the benefits of the new on-board diagnostic testing technology, the Ministry of the Environment should ensure that appropriate technical testing is completed and problems are resolved before rolling it out to all Drive Clean testing facilities in January 2013.

**Status: Fully Implemented.**

*The Ministry should also monitor the potential impact of using the less reliable two-speed idle method for testing vehicles older than model-year 1998 once the new on-board testing technology has been introduced.*

**Status: Due to the attrition of vehicles built before 1998, this recommendation is no longer relevant and will not be implemented.**

### Details

In our *2012 Annual Report*, we reported problems with the new testing equipment that was to be rolled out in January 2013. These problems included connectivity issues with remote dial-up when the Drive Clean facility uploaded photographs, the ability of the facility to erroneously change vehicle fuel type, and the ability to enter unreasonable odometer readings.

During our follow-up, we noted that, although the Ministry had corrected two of these problems before the new testing units were rolled out, and had resolved the third problem by September 2013, several issues remained. In 2012, the Ministry piloted the on-board diagnostic (OBD) equipment and testing procedures at more than 20 Drive Clean facilities, in order to identify and resolve problems prior to full implementation of the OBD testing technology. Tracking logs, provided to us by the Ministry at the time of our follow-up, indicated that all issues identified at the pilot sites had been resolved. (We noted also that, although 50 defects identified across all Drive Clean systems prior to 2013 were unresolved, they were classified as low priority, and software releases were in progress to address most of them.)

The Ministry informed us that it would continue to monitor test equipment performance and make improvements as required.

In our *2012 Annual Report*, we noted that light-duty vehicles manufactured between 1988 and 1997 could not be tested with the new OBD testing method because they were built without OBD technology and would not be tested with the previous testing technology (i.e., a dynamometer) because dynamometers were being phased out from Drive

Clean testing facilities. Starting in 2013, such vehicles would be tested with the two-speed idle method, which has less stringent emissions limits than the dynamometer and in turn would likely result in the identification of fewer of these older vehicles that require repairs.

We noted that, subsequent to the introduction of the on-board testing technology, the Ministry had not monitored the potential impact of using the less reliable two-speed idle method for testing vehicles older than model year 1998, which would include monitoring the change in the initial pass/fail rates and the effect on the levels of emissions from these vehicles. Instead, the Ministry was monitoring the rate at which these vehicles are being retired. The Ministry estimated that in 2014 only 4% of registered vehicles were built between 1988 and 1997, and by 2017 this percentage is expected to drop to half of that. The Ministry informed us that the two-speed idle test is a cost-effective solution for an ever-decreasing proportion of older vehicles.

Furthermore, the Ministry states that maintaining the dynamometer equipment would be cost-prohibitive and uneconomical for many Drive Clean facilities because it would require dedicated dynamometer bays, and because old equipment needed significant maintenance.

In our view, the Ministry's rationale for not implementing the second part of Recommendation 4 is reasonable.

## Monitoring Program Delivery

### Recommendation 5

*To maintain the integrity of the Drive Clean program, the Ministry of the Environment should:*

- *use compliance rates to periodically evaluate the appropriateness of the mix of audit compliance tools, especially given the planned substantial decrease in covert audit activities; and*

**Status: In the process of being implemented.**

- *maintain complete data for all non-compliance items identified and their related penalties, and*

*ensure that the penalties applied are appropriate, consistent and timely.*

**Status: In the process of being implemented.**

#### Details

In response to our recommendations to maintain the program's integrity, the Ministry has developed a Drive Clean Compliance Strategy and an Annual Compliance Plan.

The Drive Clean Compliance Strategy was released in February 2014 to deter and detect non-compliance of Drive Clean facilities (testing facilities) with standard operating procedures. The strategy outlines the various compliance activities that can be used to find non-compliance; how each compliance activity results in a pass/fail score for the testing facility; the various remedies available to solve and deter non-compliance; a decision-making tool to help select the appropriate remedy for a non-compliance matter; and a risk ranking matrix.

The Drive Clean Annual Compliance Plan for fiscal 2014/15 was released in March 2014. This plan sets out annual targets and deliverables for various compliance enforcement activities and provides a list of improvement projects under way. The targeted number of audits to be conducted on testing facilities by the Drive Clean service provider in the 2014/15 fiscal year includes more than 3,100 telephone audits, more than 1,500 overt audits, and 25 covert audits. The first two are unconcealed audits where compliance staff identify themselves to the staff of testing facilities, and the third consists of concealed audits where the compliance staff pose as customers. The 2014/15 plan also includes 3,000 roadside inspections to be performed by the Vehicle Emissions Enforcement Unit at the Ministry of the Environment.

The 2014/15 Annual Compliance plan also lists improvement projects that include the creation of a database to track facility compliance history and the creation of an annual compliance report. The database is intended to track, for each Drive Clean

facility, the percentage of non-compliance found in each type of audit (i.e., telephone, overt and covert audits); the nature and frequency of non-compliance; and any penalties assessed. The annual report on compliance is expected to reflect the statistical goals and targets for the various compliance tools and the progress made on implementing continuous improvement projects.

## Contract Management

### Recommendation 6

*To help ensure that the private-sector service provider meets contractual obligations in delivering the Drive Clean program, the Ministry of the Environment should adequately monitor the delivery of all services, including periodically verifying reported service levels achieved.*

**Status: In the process of being implemented.**

#### Details

The private-sector service provider's performance is measured against 36 service level targets, of which four are conditional on events that have not yet occurred. Under the terms of the contract, the Ministry can withhold payments as penalty when service levels are not met. During our follow-up, we noted that the Ministry was manually tracking only 22 of 32 service levels, and was relying on the service provider to monitor compliance with the remaining 10. To aid in the consistent evaluation of service levels, the Ministry has developed standard operating procedures for service level validation. Inconsistency in evaluation between the Ministry and the service provider was noted for only one service level in 2013.

The Ministry informed us that it was collecting information to develop a web-based tracking application to continuously monitor all service levels and apply penalties where appropriate. The Ministry expected to have this completed in October 2014.